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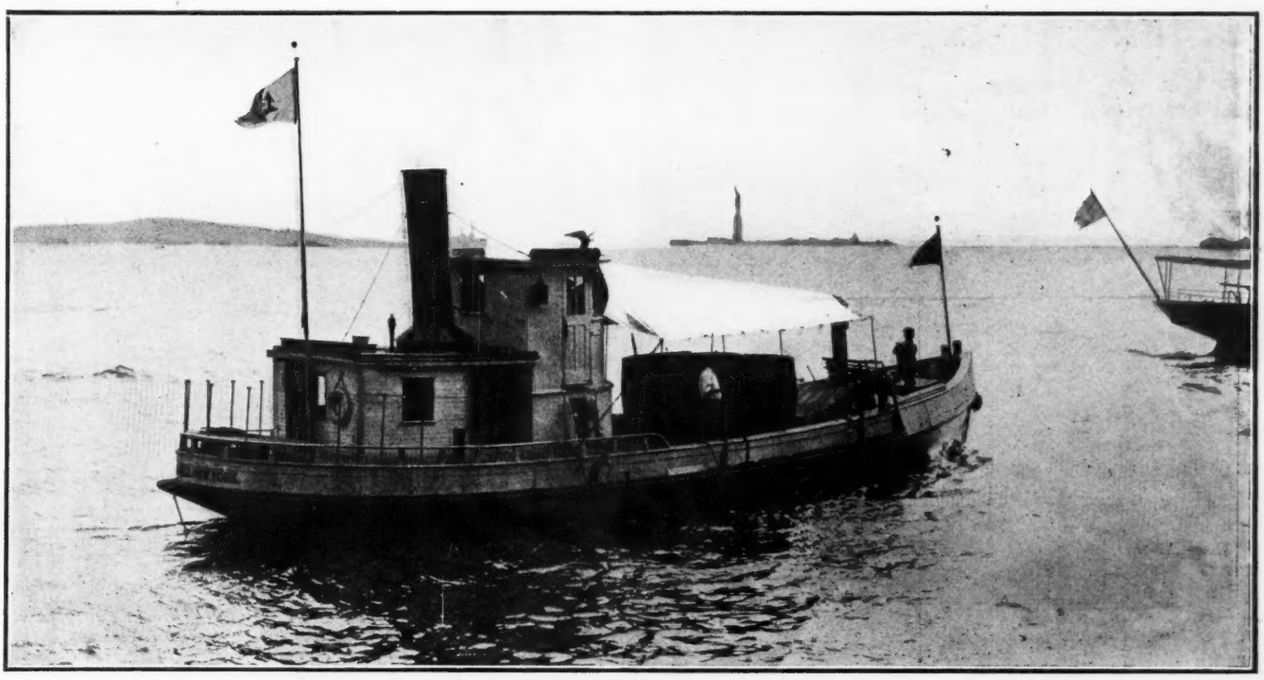


COMMISSION'S FLOATING LABORATORY, USED IN MAKING EXPERIMENTS ON DIFFUSION

SEWAGE DISPOSAL BY DILUTION

Composition of Sewage—Amount of Solids per Capita—Deposits and Distribution of Solids in New York Harbor—Composition and Diffusion of Floating Matters—Sedimentation in Salt Water

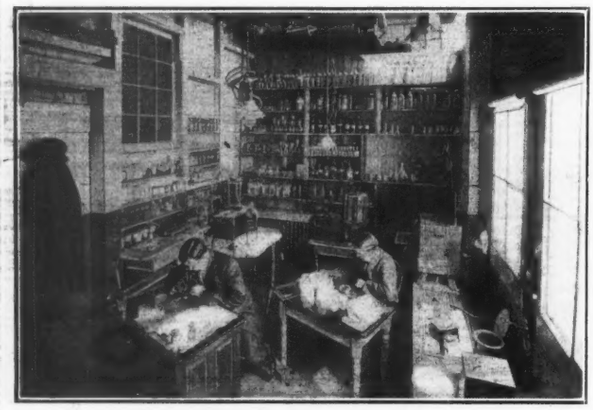
IN the report of the Metropolitan Sewerage Commission of New York, which was published a few weeks ago and which has already been referred to in previous issues, there is contained a discussion of the phenomena attending the discharge of sewage into tidal waters which is practically a condensed treatise on the subject. This matter seems to us to be of such importance and the subject of so much interest at the present time as to make it worth while to give a rather complete summary of this chapter, which is entitled by the commission "Diffusion and Digestion of Sewage in New York Harbor." The commission consists of Messrs. Geo. A. Soper, James H. Fuertes, H. de B. Parsons, Chas. Sooysmith and Linsly R. Williams. These are sanitarians and engineers of wide reputation, and in addition they had the benefit of the experience in such matters of Mr. Kenneth Allen, who has served as their engineer in immediate charge of the investigations.

In connection with its study of this subject the Commission conducted experiments in various ways and localities. Those on the ascent and diffusion of liquids were carried on in a tank of the New York Aquarium 8 ft. by 4 ft. by 4 ft. deep, with plate glass sides; also with boat loads of deyed water and deyed sewage. The physical, chemical and bacterial analyses were carried on in the Commission's laboratories, one of which was fitted out on a harbor tug, where such analyses could be made as required immediate treatment; while another and more complete laboratory, in charge of several assistants, was conducted on land at a point convenient to the water front. They had as bacteriologist Mr. Payn B. Parsons; as biologists Messrs. Raymond H. Pond and R. N. Hoyt, and as chemist Mr. David Morey.

In their discussion of the subject they first consider the composition of sewage, quoting the statement of Winslow and

Phelps that 800 parts per million of total solids is a liberal figure for sewages of American cities and is exceeded by few; and that, of the total solids, about 60 to 70 per cent are in solution, either liquid or colloidal, the remainder being insoluble matter in suspension. About one-half of the solids can be driven off by ignition, and are consequently assumed to be chiefly organic; the remainder being considered to be mineral matter. Of the organic solids about 50 per cent is dissolved and 50 per cent in suspension. Of the mineral solids about 75 per cent is dissolved. Of the 400 parts of organic matters, either solid or liquid, 150 parts per million are nitrogenous and 250 are not nitrogenous. The total carbon amounts to about 200 parts, total nitrogen to 15 parts, and the fats, etc., to 50 parts per million. These quantities are supposed to apply to a sewage where the average water consumption is 100 gallons per capita per day.

For estimating the quantity of sewage impurities contributed by a given population reference is made to the figures presented by Mr. Geo. W. Fuller and published in the Transactions of the American Society of Civil Engineers, Vol. 59, page 166, which he derived from analyses of ten cities. These indicate that the impurities are equivalent to 42.3 tons of dry solid matter per year for each 1,000 inhabitants. One ton of dry suspended matter is said by the Commission to produce about 50 tons, or 55 cubic yards, of wet sludge.



COMMISSION'S MAIN LABORATORY

The suspended matters in sewage consist of bits of feces, paper, coagulated soap, street wastes, kitchen refuse, floor sweepings, etc. The first amounts to about .077 lb. per person per day, or about 14 tons per 1,000 persons per year. Paper entering the sewers is estimated at 8 tons per 1,000 per year; soap and matter combined with the same, 11 tons; street wastes (consisting of organic and inorganic dirt derived largely from horses and other animals and an infinite number of comminuted solid matters), to about 8 tons; and miscellaneous matters to about 4 tons per 1,000 inhabitants per year. The solid matters may be divided into three classes: First, those which sink soon after the sewage is discharged into the water; second, those which continue to float for some time on the surface of the water; and third, those which are long carried in suspension in the body of tidal streams—colloids and finely divided particles of suspended matters.

The colloids may be precipitated by sea water. When allowed to settle, the precipitated colloids and sewage matters form sludge. Accumulations of sewage deposits at the bottom of tidal or other waters can be dredged only with great difficulty, as this matter is nearly as fluid as water; consequently, suction dredges are almost necessary for handling it. A considerable part of the matter sinks at or near the sewer outlet; although such deposits may move from such position, the amounts so moved depending upon the weights of the particles, the velocity of the current into which they are discharged, and the smoothness or roughness of the bottom. Investigations by the Commission showed that sewage solids had been carried to a considerable distance from the outlets and that a large part if not the whole of the bottom of the inner harbor is covered with a slimy, black, offensive mixture of detritus in which sewage solids are a prominent ingredient; the only parts free from such deposits being those where the tidal currents are very swift. In some places sewage deposits have been found to a depth of 10 ft. or more. The most serious deposits take place in the slips, basins and canals around the harbor, about 350,000 cubic yards being dredged yearly by the New York (Manhattan) Dock Department alone. It was noticed that the currents over flats, which attained a velocity of about one foot per second at ordinary tides, were apparently sufficient to keep them free of sewage debris.

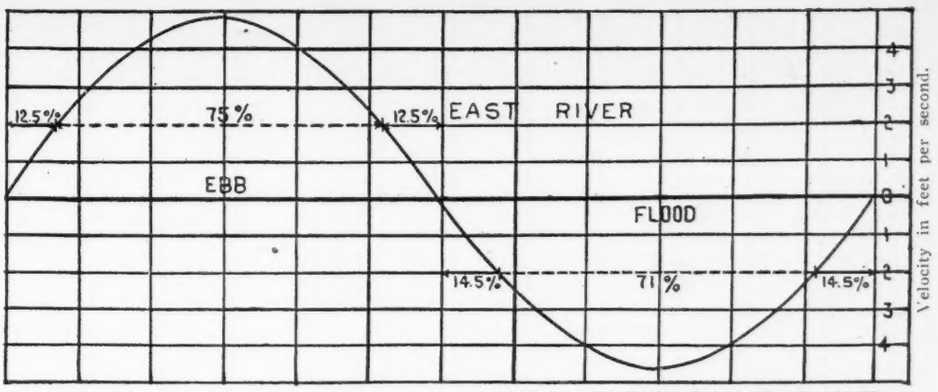
Aside from the transporting effect of currents, some particles of organic matter are broken up by the mere lubricating or dissolving power of the water, which separates the loosely bound aggregates of solids into their constituent parts. Probably a more important factor is the action of bacteria, which break down the solids and change them into liquid form—the action known as hydrolysis. This action is accompanied by the production of offensive gases which may be seen rising to the surface and forming bubbles there; which rising of the gases also has the mechanical effect of reintroducing much of the solids into suspension. In addition to the bacteria the disintegrating effect is assisted by enzymes and multitudes of minute animals and plants, including the infusoria. If a sewer is of moderate length and so constructed that deposits do not take place, there is little danger of offensive decomposition occurring in it, but such action will take place only where deposited material remains for days or weeks.

Referring to the solids which float on the surface, the Commission considers these objectionable, both because of their appearance and because they add to the total organic content of the water. During calm weather fields of grease, floating sewage matters and wood may be seen in New York Harbor, often many acres in extent and sometimes a mile or more long. They preserve their integrity with remarkable persistence and are not easily broken up by ordinary winds or waves or the movements of passing vessels. These floating particles may not of themselves be lighter than water, but may form aggregates which contain enough gas to buoy them at the surface. As these masses are broken up by the action of the winds and waves the heavy particles settle to the bottom. Actual liquefaction, however, does not take place at the surface, but at the bottom of the water. These fields of floating matter form near the outlets of sewers, and contain many visible particles of paper and other solid matters, and give the water a brownish-gray and decidedly turbid appearance. This field seems to mix but slowly with the surrounding water, the diffusion appearing to proceed chiefly from the bottom rather than the edges of the area. The entire area is covered with a film of grease, which is persistent and lasts much longer than the other floating matters, remaining on the surface in detached films even after the large field is broken up by waves and eddies. There are also seen, long after the brownish turbidity has disappeared, small particles of paper and great numbers of minute white flakes which consist largely of insoluble soaps produced by the chemical combination of soluble soaps in the sewage with the calcium and magnesium salts in the water. Floating particles are carried about by currents and by winds. The latter especially tend to ultimately send all floating particles to the shore, since a particle once driven near the shore is more or less protected from the effect of all winds except those which tend to drive it further ashore. In addition to this there appears to be a principle of general application which acts on solid particles and tends to drive them towards the shores of tidal waters. The fact that floats sent out by the Commission were observed to strand more often on flood than on ebb tides would perhaps indicate that the surface of the water was given a convex form by the incoming tide, and the floating particles moved by gravity down the slopes of this to the shores.

The water front of a city generally contains a number of piers and shipping basins, which serve as traps, retaining in them

floating matters which are forced in by either wind, current or other agent.

Extensive studies of tidal phenomena in New York Harbor have been made by the U. S. Coast and Geodetic Survey and also by the Metropolitan Sewerage Commission. It is, of course, well known that there is a time of maximum velocity of flood and also of ebb tide; that the velocity of one decreases gradually until it finally reaches zero and then passes to the other. The accompanying curve diagram indicates approximately the velocities of the tidal currents in the East River at New York City. The diagram shows that in the East River a velocity of 2 feet or more per second is found during 75 per cent of the ebb and 71 per cent of the flood tide. It is evident that the maximum velocities are available for moving for short periods the lighter particles which have settled to the bottom, and that there is twice every day a period of no velocity, when any suspended matter heavier than water tends to settle to the bottom, although such tendency will be neutralized by the action of winds, waves or vertical currents. As a matter of fact it is largely the upward currents which are produced by the general ebb and flow of the water which hold the matters in suspension rather than the horizontal motion of the water. These upward currents are caused to a great extent by irregularities in the bottom of the stream; consequently, the conditions of the bottom of the water as to irregularities is an important factor.



VELOCITIES OF TIDAL CURRENTS UNDER AVERAGE CONDITIONS—HORIZONTAL SPACES REPRESENT LUNAR HOURS

It is a fact of great importance, but one generally overlooked, that the transporting power of a river for solid particles in suspension is diminished by the presence of sea water. Water which is strongly saline will not transport as much solid matter in suspension as will water which is without salt. This means that rivers which discharge into the sea deposit solid matters not alone because the velocity of their current is checked by the waters of the ocean, but because they are more salty.

Sewage which is discharged into a tidal harbor will deposit more solids than would be deposited if the discharge took place into a land water stream flowing at the same velocity. The capacity of a harbor for carrying sewage matters to sea, therefore, cannot be estimated safely from information obtained merely from a study of inland rivers.

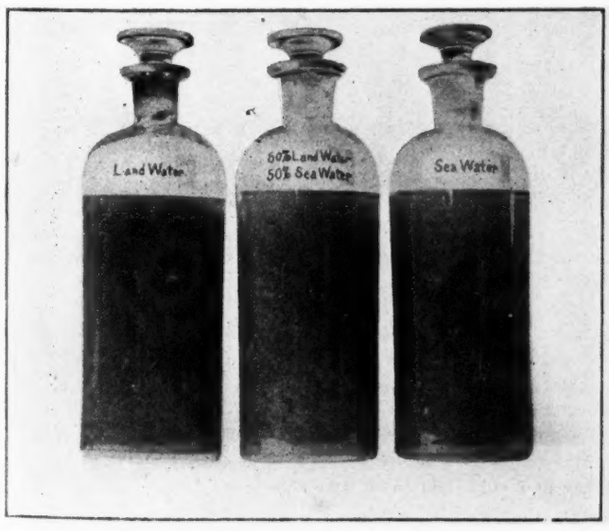
In order to compare the relative rate at which sewage sludge deposits in land and sea water the Metropolitan Sewerage Commission made a number of experiments, the result of which was to show that deposits took place much more rapidly in sea water than in land water.

Two bottles, alike in all respects, were nearly filled, with sea water in one case and land water in the other. An equal quantity of sludge which had been deposited from sewage was then added to the water in each bottle. The bottles were thoroughly shaken and set upon a table to enable the deposit to settle out.

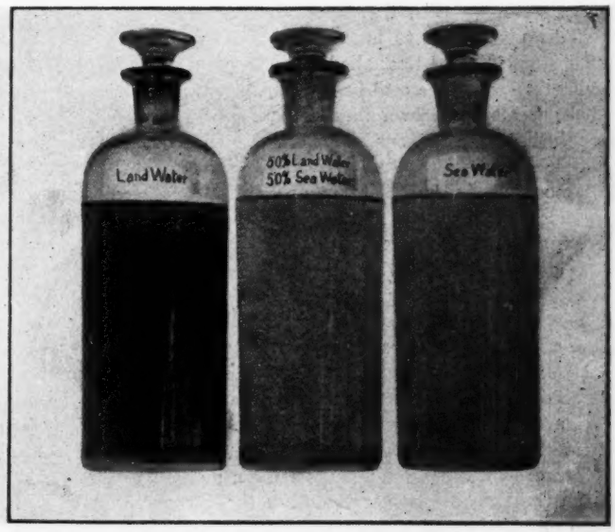
At the end of one-half hour the water in the bottle containing sea water was noticeably clearer than the water in the other. At the end of one hour the difference was very marked. A heavy deposit had settled upon the bottom of the bottle containing sea water and the supernatant water was clearing rapidly. There was little change in the bottle containing land water. At the end of two hours there was little difference in the appearance of the land water. Most of the sludge had settled upon the bottom of the bottle containing sea water and the water was clearer than it had been.

At the end of three hours some deposit was visible at the bottom of the land water, but the water itself was not as clear as the sea water had been at the end of the first half hour. The bottle containing sea water had deposited practically all the sludge which had been put into it. As nearly as could be estimated from mere inspection the sea water had deposited its suspended matter more than twelve times as rapidly as had the land water.

(To be concluded)



SEWAGE SLUDGE AND WATER IMMEDIATELY AFTER MIXING



SEWAGE SLUDGE AND WATER TWO HOURS AFTER MIXING

EXPERIMENT SHOWING THAT SEWAGE SLUDGE SETTLES MORE RAPIDLY IN SEA WATER THAN IN LAND WATER

After two hours the mixture of sludge with sea water showed a black deposit on the bottom and a comparatively clear supernatant fluid. The appearance of the land water with which an equal quantity of sludge had been mixed was practically unchanged.

SMOKE ABATEMENT

New Smoke Law in Massachusetts—Small Plants the Greatest Offenders—Loss in Unconsumed Gases —Ringelmann Smoke Chart

MODERN street cleaning methods, improved pavements, and the increased use of oil and tar treatments on the roadways are doing much towards the elimination of dust, but, notwithstanding all the agitation, comparatively little progress has been made in doing away with smoke. True it is that the smoke nuisance is being attacked with vigor by many municipalities, but in some cases more enthusiasm than common sense has been displayed. On the whole, however, the movement is undoubtedly beginning to bear fruit in the form of cleaner and more sightly as well as more sanitary communities. Many mistakes have been made in shaping laws and ordinances either too drastic to be enforceable or too easy to evade.

A distinct source of difficulty lies in the very widespread misunderstanding of where most of our city smoke comes from. It has been generally taken for granted that almost all of the murk is due to the big power houses, central stations and industrial plants. As a general rule the amount of smoke *per ton of coal burned* in large modern installations of this type is as low as it is possible for expert operators in charge of the best of apparatus to make it. Smoke means poor economy, and the big plants are economical.

Few realize to what extent the thousands of little plants, heating boilers, isolated power plants, small factories, etc., are pernicious offenders. Their very multiplicity protects them. Each one may generate an insignificant amount of smoke when counted against the city's total volume, but their aggregate is a large item. More economical operation and better design of the small plants will certainly do a great deal towards brightening our smoky skies.

Smoke, which is primarily the result of incomplete combustion, consists almost entirely of finely divided carbon formed when the volatile hydrocarbons of the coal are distilled off in the first stage of burning. If this powdered carbon is cooled below the ignition temperature before it has had an opportunity to burn, it will float off as smoke. On the other hand, if the carbon particles are maintained at the ignition temperature and supplied with sufficient oxygen, they will burn to carbon dioxide, an invisible gas. The obvious remedy for smoke is not, therefore, to try to capture it after it has been formed, but to provide the proper conditions to prevent its formation. To do this, the gases distilled from the fresh coal must be given time to burn before reaching a cool zone and sufficient air must be supplied to make combustion complete. A device that cokes the coal before burning it, and causes the distilled gases to pass over incandescent coal or fire brick before reaching any cooling surface should, if correctly proportioned, prevent smoke. Some types of mechanical stoker accomplish this most nearly, but these are generally out of the question for most small plants. If impressed with the importance of such an invention, however, there is no reason why American ingenuity should not evolve a simple method of securing complete combustion in any style or size of furnace.

Once smoke is formed, there are two ways of taking it out of the gases of combustion. One is to bring the gases to a standstill and to let the soot settle out, and the other is by washing the gases. Both methods are impractical. One objection alone is insurmountable—the fact that the draft is reduced. Various devices may mitigate the evil after the smoke is formed, but the logical and scientific method certainly is to attack the nuisance at its source, in the furnace.

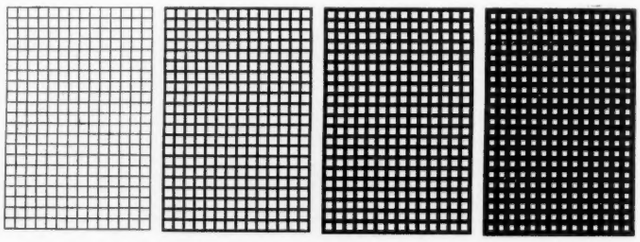
An essential requisite to success in the movement for smoke abatement is to determine just what constitutes smoke. In a great many cases, the definition used has been capable of such varieties of interpretation that a clever lawyer can often convince a court that the smoke complained of was not smoke as defined by the law.

A step in the right direction has been taken recently by Massachusetts. The new smoke law in that State includes among its provisions the adoption of a definite scientific standard of smoke—density measurement. This standard is the Ringelmann smoke chart as used by the U. S. Geological Survey. A smoke inspector and a corps of deputy inspectors are to investigate complaints, and if the latter are justified, to bring the offenders before the Board of Gas and Electric Light Commissioners. Fines of from ten to fifty dollars are to be levied for first offense and from twenty to one hundred dollars for subsequent infractions of the law. All stacks are divided into classes based on their area at the top, and the number of minutes per hour and density of smoke permitted each class are designated clearly.

The Ringelmann Smoke Chart consists of four rectangles 8½ inches by 5⅝ inches made up of crossing vertical and horizontal black lines. These divide each rectangle into squares. The difference between the rectangles lies in the breadth of the lines No. 1 represents 20 per cent density, No. 2, 40 per cent, No. 3, 60 per cent, and No. 4, 80 per cent of total black smoke. If no smoke is visible the density falls under No. 0. Absolutely black smoke or 100 per cent is classified as No. 5.

The method of using this chart is to place it 50 feet from the observer, as nearly as possible in line with the chimney, and then to determine by the eye under which of the above classifications the smoke falls. A trained smoke inspector can usually interpolate between the different grades: No. 2½, for example, corresponding to 50 per cent density.

In order to avoid injustice through the immediate enforcement of the ultimate requirements of the law, the rules for each class of chimneys grow more stringent for each year from 1910 to 1913, when the final standard is reached. This is to allow time for engineers and owners to make such alterations and take such other steps as may be necessary to decrease the amount of smoke from their plants. Furthermore, temporary permits for the emission of smoke may be granted until December, 1910, if it is shown that the responsible parties need time to equip their plants properly to comply with the law. After December first no further stays will be allowed.



No. 1 No. 2 No. 3 No. 4

RINGELMANN'S SCALE FOR GRADING THE DENSITY OF SMOKE (ONE-SEVENTH ACTUAL SIZE)

Hang smoke chart on a level with the eye, about 50 feet from observer, as nearly as possible in line with chimney. Glance from smoke to chart and note corresponding number, recording same and time of observation. Repeat observations at one-fourth or one-half minute intervals. From these records the average density may be determined for each hour, or for each day. No smoke is recorded as No. 0; 100 per cent black smoke is recorded as No. 5. Experienced observers often record in half chart numbers.

The results of the new law will be of both engineering and civic interest. While smoke in itself represents a loss of not more than 1 per cent to 1½ per cent in unconsumed carbon, it indicates a much greater loss in the form of unburned volatile constituents of the coal and therefore its abatement adds to plant efficiency. Some interesting tests on this subject were recently made by the Technologic Branch of the Geological Survey and published in Bulletin No. 325. The results of 219 tests are tabulated below:

Ave. % Black Smoke.....	0	7.1	15.5	24.7	34.7	43.1	52.9
Ave. % C O in flue gases..	.05	.11	.11	.14	.21	.33	.35

The significance of these figures is apparent when it is remembered that coal burned to carbon dioxide (CO_2) gives up 14,000 heat units in the process, while incomplete combustion to carbon moxonide (CO) evolves but 4,500 units. These fig-

ures can leave little doubt of the economy of smokelessness from the standpoint of the engineer. To the architect a cleaner city will offer an incentive to design edifices that are something more than huge packing-boxes and will make it worth his while to beautify our cities by erecting buildings that combine the artistic with the utilitarian.

CERTAINTY AND ECONOMY OF AUTOS

Experience in Lansing, Mich.—Cost of Maintaining Auto Engine, Auto Chemical and Chief's Wagon—Large Horsepower Necessary

By HUGO R. DELFS, Chief of Lansing, Mich., Fire Department.

Paper read before the 1910 Convention of the National Firemen's Association

IN the present day one inventor after another tries to achieve something better than the other fellow. This is but natural; we are living in a most progressive age, and in the line of inventions, fire fighting apparatus has not been overlooked, and great credit is due the inventors of the wonderful automobile fire apparatus, which means so much to any progressive city. Think of the speed with which you can get to the fire and the lives that may be saved by the firemen—the auto being as it were Johnny on the spot. Time is essential. With the automobile apparatus you can get to the scene of the fire so quickly that ninety-nine out of every hundred fires are extinguished in their infancy, and if you put out the small ones you won't have the large ones to contend with.

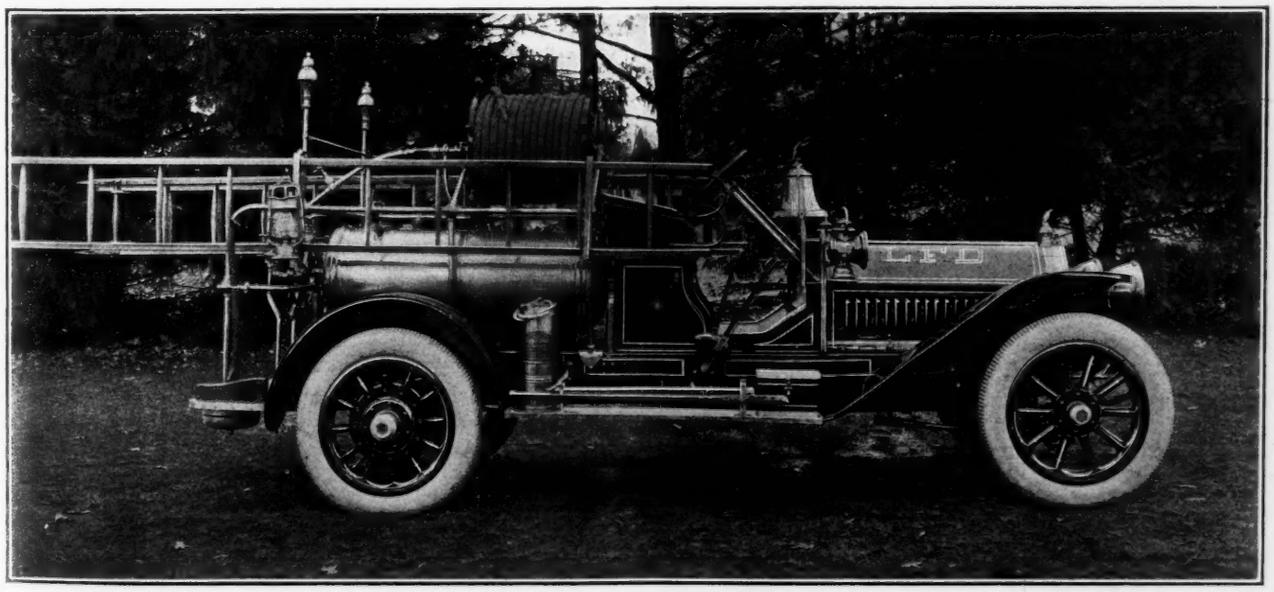
I personally have had considerable experience with automobile fire apparatus as Lansing, Mich., was one of the first cities in America to install in her department an auto engine. This engine has been in service 21½ months. It is equipped with a 60 horse-power, six-cylinder Olds motor. The Webb Motor Fire Apparatus Co., of St. Louis, equipped the chassis with a Webb pump, with a capacity of 650 gallons per minute, while the body carries 900 ft. of 2½ in. standard hose. We have also in service an auto chemical engine, double tank, 60 gallons each. This was built by the Olds Motor Works and has a 60 horse-power, six-cylinder motor. In addition to this we have one chief's auto, also built by the Olds Motor Works, with a 40 horse-power four-cylinder motor, equipped with two hand chemicals, one 6½ lb. axe, insulated wire cutters, rubber gloves, etc.

Briefly I have outlined to you the auto fire apparatus used in our city and I find that Lansing is not alone as Trenton, N. J., Augusta, Ga., Akron, O., Springfield, O., Youngstown, O., Alliance, O., Macon, Ga., Joplin, Mo., Springfield, Mass., Hull, Mass., Detroit, Mich., Sapulpa, Okla., Tulsa, Okla., and many other cities have installed similar appliances.

Auto fire fighting apparatus is past the experimental stage, and to me the time seems not far distant when horses will be eliminated from fire departments.

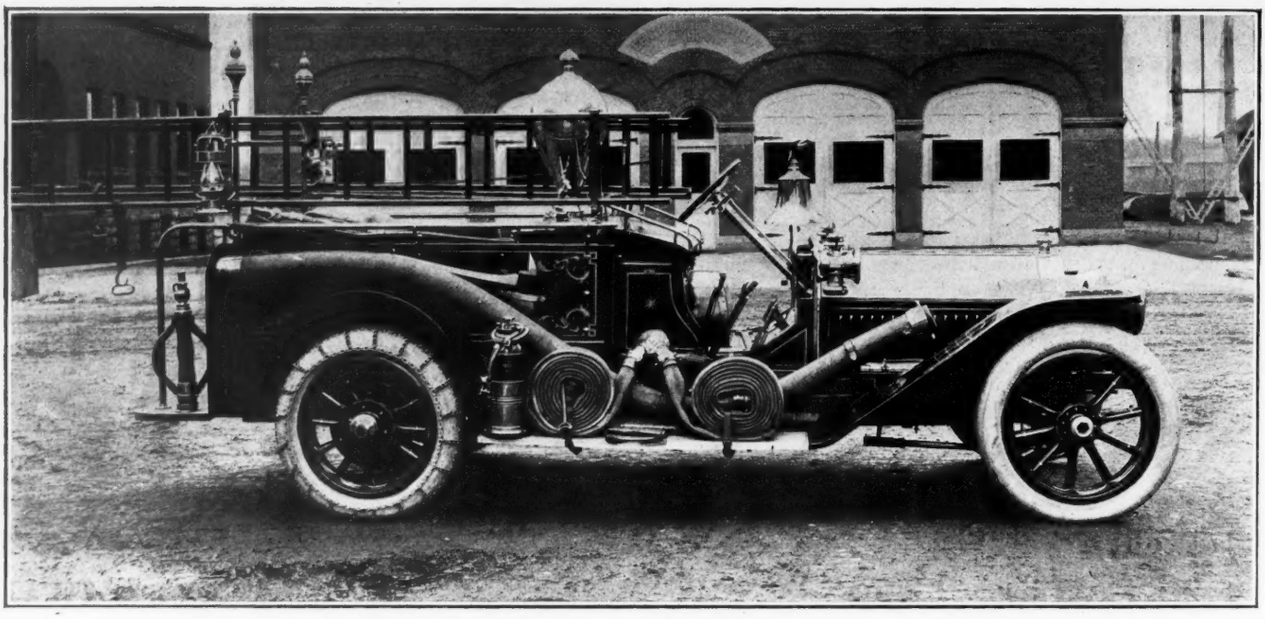
I was pleased when your committee in wording this topic referred to the "certain" and "economical" features. Now as to the certainty of the auto fire apparatus. Our three pieces combined responded to a total of 208 alarms. We had two accidents with our engine, one caused by skidding and the other by breakage of a universal joint. On these two occasions the engine did not reach the scene of the fire, and with these two exceptions none of the apparatus had failed us in any way, shape or manner. Brothers, how many times have you responded to an alarm when a horse fell and was injured. Did you get to the fire? I think not. You also have collided with other moving vehicles. Again you did not get to the fire. Again you have been using your engines at fires when flues would burst and put the engine out of commission, and I could tell you other accidents that may happen to horse-drawn apparatus. In making this little comparison I am convinced you will agree with me as to the certainty of the auto apparatus.

A word as to economy. I will give you my report as given the Board of Police & Fire Commissioners for the year ending April 30, 1910. The auto engine responded to 101 alarms of fire and 31 exhibition and test runs, traveling 224 miles. It pumped at actual fires 18 hours and 24 minutes, and at tests and exhibitions, 4 hours and 45 minutes. The cost of maintenance (including gasoline, cylinder oil, grease, spark plugs, charging storage batteries, etc.) $44.49 or 12½ cts. per day, while the total cost including two accidents was $341.26 or 94½ cts. per day. No tire repairs were necessary; never had



AUTO CHEMICAL ENGINE

Sixty horsepower, 6-cylinder Olds motor.
Tires, 36 x 5½.
Two sixty-gallon chemical tanks.
250 feet of 1-inch chemical hose.
Two hand extinguishers, 3-gallon.
One 24-ft. extension ladder.
One 12-ft. roof ladder.
One Detroit door opener.
Two 7-lb. axes.
Two F. D. lanterns.
One smoke helmet.
Small tools, etc., etc.
Speed, 5 to 55 miles per hour.
The machine answers all alarms of fire anywhere in the city.



LANSING AUTO FIRE ENGINE

Sixty horsepower, 6-cylinder Olds motor.
Equipped by the Webb Auto Fire Apparatus Co., St. Louis, Mo.
Equipped with Webb pump, capacity 650 gallons per minute.
Body carries 1,000 ft. of 2½-in. standard hose.
Two 12-ft. 4-in. stiff suction pipes.
Two 25-ft. 2½-in. soft suction pipes.
One 24-ft. extension ladder.
One 24-ft. roof ladder.
Two 3-gallon Babcock chemical hand extinguishers.
One Bresnehan cellar nozzle.
Two 7-lb. axes.
Two F. D. lanterns.
Nozzles, wrenches, etc., etc.
Speed, 5 to 55 miles per hour. Will throw two streams, 150 ft. of hose on each, 1⅛ nozzles, maintaining a pressure at engine (plug pressure) of 130 lbs. indefinitely. In service 20 months.

a blow-out or puncture, and tires have been in use to date 20 months, and show no material wear as yet.

The auto chemical was placed in service Nov. 22, 1909, and has responded to 76 alarms of fire and to 7 exhibition and test runs, traveling 147 miles, discharging 2676 gallons of chemical fluid. The cost of maintenance for five months was $21.00 or 14 cts. a day. These tires are in excellent condition, never had any trouble with them.

The chief's auto responded to 121 fire alarms and all other business connected with the department (visiting substation daily, inspections, country trips looking up horses, etc.) traveling in the twelve months 3475 miles. Cost of maintenance was $121.17 or 33 2-3 cts. per day.

The cost for operating the three pieces for one year exclusive of accidents was $186.66, while to do the same work with horse-drawn apparatus you would require 3 horses on the steam engine, 2 on your hose wagon, 2 on your chemical and, on your chief's buggy—a total of 8 horses—which would cost to maintain (oats, hay, shoeing, veterinary bills, harness repairs, etc.,) about $18 per month for each horse or $1,728 a year, a difference in favor of the auto apparatus of $1,541.34 in one year. Did you ever hear of a better dividend payer for a municipality? The loss of one horse from your department would more than overcome all accidents and tire bills for your auto apparatus, and I think you will agree with me that auto fire apparatus is not only economical but the best asset any municipality can acquire.

I could go on and enumerate many reasons why auto fire apparatus should be installed in your departments, but I will not take up much more of your time. In concluding I wish to say, if you are contemplating the purchase of auto fire apparatus, buy the best the market affords. You cannot make auto fire apparatus out of one or two cylinder ordinary stock cars. Insist on having enough horse-power—nothing less than 60 for auto chemicals and hose wagons, and for auto fire engines not less than 90 horse-power or more, if possible.

Our city has just contracted with the Webb Motor Fire Apparatus Co. for one of their 900-gallon pumps to be placed on a specially built 1911 90 horse-power six-cylinder Olds chassis, with specially constructed frame. Lansing is more than pleased with her motor apparatus, and I can conscientiously say that in the next three years we will not have a horse in our department. No man loves a horse more than I and it is with a feeling of regret that I see the noble faithful animal go, but as time is essential, in my estimation, the motor must take his place.

GROUND WATER AND BUILDING FOUNDATIONS

ATTENTION was called by Mr. Francis L. Pruyn in a paper before the Municipal Engineers of the City of New York to the possibility of danger to building foundations from the lowering of the ground water table which may result from underground constructions, such as subways, sewers, and the like. His illustrations were confined exclusively to New York City, but similar conditions and results might readily be duplicated elsewhere. He states "There are many instances where wooden piles have been used in the foundations of buildings, where the piles were cut off well below the then existing water table. Deeper excavations to adjoining buildings or adjacent tunnels or subways have considerably lowered the water level, with the result that the heads of the piles have decayed and the buildings settled."

During the construction of a subway in Center street, pumping was continued for a length of ten or twelve months with a sump 25 feet below the curb, and buildings in the neighborhood have all settled from 2 to 8 inches, a large part, if not all of which he believes due to the lowering of the water table (although in this case the piles probably have not had time to rot). One building 200 feet away from the excavation was found to have settled, the water table having fallen there about four feet. It does not seem probable that any other effect of the excavation could have extended to such a distance. It is possible that a water-soaked soil, even where previously under great pressure from foundations, may itself be reduced in volume by the withdrawal of moisture held within its pores by capillary attraction.

Such instances would seem to indicate the necessity for taking great care to cut off foundation piles below the lowest possible level of the water table, or to substitute concrete piles for wood.

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Contributions suitable for this paper, either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL AND ENGINEER, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

SEPTEMBER 14, 1910

CONTENTS

Sewage Disposal by Dilution. (Illustrated)..... 357
Smoke Abatement. (Illustrated)..... 360
Certainty and Economy of Autos. (Illustrated). By Hugo R. Delfs, Chief of Lansing, Mich., Fire Department..... 361
Ground Water and Building Foundations..... 362
Summer Resorts and Typhoid..... 363
Bituminous Road Terminology..... 363
Testing Concrete Aggregate..... 364
Pavement Crowns..... 364
Eminent Domain for Park Commissions. (Illustrated)..... 365
Sewer Maintenance in San Francisco..... 365
News of the Municipalities. (Illustrated)..... 366
Legal News—A Summary and Notes of Recent Decisions..... 373
News of the Societies..... 374
Personals..... 375
Municipal Appliances. (Illustrated)..... 376
Trade Notes..... 376
The Municipal Index..... 377
New Incorporations..... 380
Patent Claims. (Illustrated)..... 380
The Week's Contract News..... 381

Summer Resorts and Typhoid

THIS is the season of the year when city health authorities have most forcibly brought to their notice the need for better sanitary conditions in summer resorts. Since the period of incubation of typhoid fever is approximately two weeks, and the majority of vacationists are away from the city no longer than that, cases contracted at such resorts become known only after the return of the patient to the city; and thus the ill repute which might serve to give warning to others fails to attach itself to the resort for its dangerous insanitation.

During the week ending September 3, of 38 new cases of typhoid reported in Washington, D. C., 18 were reported to have been contracted outside of the District. Of 27 Long Island resorts inspected by the New York State Board of Health in 1907, five were found insanitary. Of 64 in the Catskills, insanitary conditions were found at 19. Of 42 Adirondack resorts inspected in 1908, the proprietors of 24 were requested to improve insanitary conditions. It is believed that, resulting from this activity of the State Board, conditions in these sections have improved; but it is to be feared that they are much worse in many States where there is no supervision whatever of this kind.

If State Boards of Health would direct physicians to ascertain, so far as possible, where each case of imported typhoid was contracted, and publish the figures in the spring of each year, or at least use them in forcing a betterment of conditions by the offending parties, it seems probable that self-interest would lead to the elimination of a large percentage of this danger which lurks in so many of these resorts—a danger which possibly exists throughout the year, reaching out to the city through the medium of milk, fruits, etc., obtained from these same localities.

Bituminous Road Terminology

CRESTON, IOWA, Aug. 29, 1910.

Editor MUNICIPAL JOURNAL AND ENGINEER,
New York City.

DEAR SIR: I have just read, in your issue of August 24, Mr. Geo. C. Warren's communication on the subject of Road Terminology and am inclined to take issue with that portion of Mr. Warren's recommendation in which he suggests the abandonment of the general term "Bituminous Macadam" and the substitution therefor of the particularized terms "Tar Macadam," "Oil Macadam," "Pitch Macadam" and "Asphalt Macadam." My reasons are as follows:

The use of a terminology is to convey ideas, and the use of terms more definite and particularized than the ideas which they are intended to convey has a misleading tendency.

So far as I have been able to learn there is no consensus of opinion among engineers that the source or brand of a bituminous material has any bearing on its availability for any particular use, provided its character is suitable to the use contemplated.

The Iowa law requires that the construction of a proposed municipal improvement be generally described in the first proceedings, and I understand that many States have similar laws. If the proposed improvement be a pavement with a surface composed of mineral particles bound with a bituminous material it may well be generally described as a bituminous macadam. The designing engineer having determined the composition, consistency and other characteristics desired in the bituminous material, these may be set forth in the specifications, and, if the requirements are judiciously taken, it is probable that the producers of bitumen from several different sources may be able to supply materials complying with the specifications, and the general competition, so desirable from the standpoint of the one who pays for the improvement, will be thereby secured.

If, on the other hand, the suggestion of Mr. Warren be followed and the contemplated improvement be described in the preliminary proceedings by the use of one of the more specific terms proposed, the field of competition is at once practically narrowed to the producers of material from the source indicated by the particular term used, and those producers who draw their supplies from other sources, though they may be able to furnish a material complying in every detail with the qualities actually desired, are compelled either to refrain from undertaking to supply prospective bidders, or to undertake to supply a material which does not comply with the proceedings and take the chances of legal complications. From my own experience I would estimate that such a condition would probably increase the cost of the improvement from 5 to 10 per cent, with no corresponding advantage to the purchaser.

For these reasons I am of the opinion that the use of the term "Bituminous Macadam" should be retained in the general description of road construction, of the kind indicated, in which bituminous material from any one of several sources may be used with equal probability of good results.

Yours very truly,
THEO. S. DELAY.

Mr. Geo. C. Warren requests us to correct an error in his communication published in the issue of August 24. The definition in the seventh paragraph of "Bituminous Binder" should have been given as applying to "Bituminous Mortar," the definition reading: "Bituminous mortar is a combination of bituminous cement and sand or other equally fine mineral aggregate."

TESTING CONCRETE AGGREGATE

This as Important as Testing Cement—Illustration in Syracuse—Determinations Made—Ingenious Shaker and Moist Closet

In connection with the construction of the intercepting sewer and creek lining at Syracuse, already described in the Municipal Journal and Engineer, the engineering department has taken unusual pains to test the materials used in the concrete work; and this has included not the cement only, but also the sand, stone and gravel. The reason for making these tests is explained quite fully by Chief Engineer Glenn D. Holmes as follows:

The examining of the concrete aggregates on general public work has seldom received the attention which it requires and deserves. In many, if not most, specifications for sand, about the only requirement is that the sand shall be clean and sharp. That these requirements may lead to the selection of an inferior sand is shown by the following tensile strength tests of local sands made in our laboratory, using in each case the same cement:

Per Cent of Silt	Shape of Grains	Tensile Strength, Pounds 7 Days	28 Days	3 Months
1.5	Angular	100	163	...
3.5	Angular	83	183	...
1.5	Angular	244	369	450
10.5	Round	259	367	522
3.2	Round	238	371	...
8.3	Round	273	374	...

The 1.5 per cent silt was washed out, and the cleaned sand gave double strength; the 10.5 per cent silt washed out left sand with much less strength, and adding to this the silt from the 1.5 per cent sand about halved the strength. Mr. Holmes thinks this silt is probably vegetable; or, at any rate, that the nature of the silt has fully as much effect on the strength as the amount. This sand is sent in from 80 miles away and is considered extra good by Syracuse builders, because so clean.

In the examination of concrete aggregates the following determinations are made of each sample submitted: Nature of material; shape of fragments or grains; per cent of absorption; specific gravity; absolute voids; per cent of silt; mechanical analysis; uniformity coefficient and effective size of sands. In addition to the above, a tensile strength comparison is made with standard Ottawa sand, using standard cement mixed 1 to 3 with the portion of the sand, gravel or broken stone passing a No. 4 screen. . . . The fact that the board has a well-equipped laboratory and makes such thorough and practical tests of each consignment of material has resulted in a very noticeable improvement in the quality of all supplies submitted for test. This is particularly true in regard to cements.

In testing a given sand it is compared with standard Ottawa sand by making a number of briquettes of each, using cement from the same bag for both sets. The results with the sand under test are expressed in terms of the percentage of the average briquette strength developed as compared with the average strength of the corresponding set in which Ottawa sand is used. No sand is accepted which does not develop 90 per cent of the strength of standard Ottawa sand when tested in this way. The laboratory has tested 15 brands of cement, from which about 5,000 briquettes have been made; also 33 varieties of sand, ten of gravel and twelve of broken stone.

In the laboratory outfit are found a number of ingenious contrivances which originated with the engineering corps, probably most of them with either Mr. Holmes or his assistant, Mr. Girard N. Parce, who is in charge of the laboratory. Among these is a shaker for shaking the sieves used in testing the fineness of cement, sand and gravel. A base just large enough to hold the nest of sieves, which are clamped to the top of it, is moved back and forth on the table of an old sewing machine stand, an arm from this being fastened to one end of an elbow, which rocks in bearings on the table above the wheel, the other end of the elbow being connected by another arm to the wheel of the machine. This wheel is driven by a belt from a small water motor fastened to the wall directly above it. Aside from the stand and wheel of the old sewing machine, the entire apparatus was easily made, but is very effective.

Another home-made piece of apparatus is a moist closet, which was made by cutting and bending a sheet of herring-bone metal so as to form five sides of a cube, the edges where the metal came together being fastened with wire. This was then plastered with cement mortar both inside and out, a total thickness of about one inch being obtained. For the door, a sheet of the same metal cut to the proper size was covered with cement mortar in the same way. Hinges were fastened to both the box and the door by drilling through cement and metal and fastening the hinge straps by bolts. The inside dimensions of the closet are about 20 inches each way. Three glass shelves are supported on the inside by small iron pins inserted in the walls.

PAVEMENT CROWNS

Editor of Municipal Journal and Engineer,
239 West Thirty-ninth Street, New York.

Dear Sir: In a paper prepared on the above subject by the undersigned for the convention of the American Society of Municipal Improvements, held in Little Rock, Ark., in November, 1909, which was published in most of the engineering papers as well as in the Proceedings of the Convention, the general rule was given: for monolithic pavements providing roughened or grainy surface, to provide a crown ¼ inch per foot of width of roadway between tracks; and that ⅓ of the fall be between crown and quarter and ⅔ between quarter and gutter. A rule in quite common practice is 1 inch crown in 5 or 6 feet of width, and ¼ of the fall between crown and quarter, and ¾ between quarter and gutter. The paper gave variations for peculiar conditions, such as steep grades, streets having railroad tracks or having curb on one side at a higher level than the other side of the street.

The effect of the rule suggested by the paper referred to as compared with flatter crowns in common practice is:

(a) To slightly raise the crown and consequently provide better flow of water to the gutter.

(b) To increase the ratio of fall from the center of the roadway to the "quarter" point, thus overcoming the flat crowns holding water and causing deterioration which are so common in street pavements.

These were the cardinal principles the paper intended to bring out. In discussion following the reading of the paper, it was criticised as not providing points between the quarter and gutter and between the quarter and crown. While these "mid-quarter" points are quite unnecessary unless the streets are wider than 40 feet, the criticism of the omission was well taken, and the writer replied, as it now appears, with insufficient thought, as follows:

"With reference to suggestion, that my rule did not provide for grades intermediate between the quarter and the curb, or between the quarter and the crown, I must admit that my paper was faulty in that respect. With streets, say 40 feet wide, I believe my rule is sufficient, and no intermediate points are necessary or advisable. If the streets were of unusual width, the rule I would follow would be to first find the crown and then find the quarter and intermediate points by sighting across with a "T." *If the street is of such width that you want intermediate stakes, make the same division between the quarter and the curb as between the quarter and the crown, that is, let two-thirds of a total fall be in the half nearest the curb and one-third in the half nearest the crown.*"

Through private correspondence, Mr. G. B. Zahniser, C. E., of New Castle, Pa., kindly calls my attention to the fact (quite overlooked in my off-hand reply to the conditions above referred to) that this provides a "straight line from the crown mid-quarter point to the curb mid-quarter point." Mr. Zahniser agrees with the writer's cardinal rules above referred to, and as to mid-quarter points suggests the following rule, which the writer heartily endorses:

First drop ⅛ the crown at the crown mid-quarter point.
Second drop ⅓ the crown at the quarter point.
Third drop ⅝ the crown at the curb mid-quarter point.

The writer's rule, thus modified by Mr. Zahniser, gives the following on a nearly flat street with roadway 80 feet wide between gutters on streets having no tracks:

Crown, 20 inches above gutter.
First drop (one-eighth of the crown) at the crown mid-quarter point, 2½ inches below the crown.
Second drop (one-third the crown) at the quarter point, 6⅔ inches below the crown.
Third drop (five-eighths of the crown) at the curb mid-quarter point, 12½ inches below the crown.

Will you kindly give space for these important corrections, and oblige, Very truly yours,

Geo. C. Warren.

EMINENT DOMAIN FOR PARK COMMISSIONS

THE Metropolitan Park Commission of Providence plantations (which includes a large part of the State of Rhode Island) appeals in its sixth annual report for a limited right of eminent domain, and also the power to sell land which it has for one reason or another previously purchased. The power of eminent domain it considers absolutely necessary for two reasons: "First, to prevent a certain few individuals from taking unfair advantages of the State and of their more reasonable neighbors. Second, to obtain possession of those tracts of land upon which some kind of cloud or legal complication now rests." The Commission states that similar commissions in practically every State in the country are given such power.

Another privilege which they request is the power to sell certain lands which are not necessary or especially desirable for park purposes, but which it must in some case acquire in the process of obtaining the land which it really does need. The reasons they offer in favor of this are that many land owners refuse to sell any part of their property unless they can sell it all. Also that it should be possible to make proper restrictions as to occupancy of lands adoining park property, in order that the purposes of a park improvement should not be partially or wholly defeated by the acts of some private citizen.

The first named condition appears in a very large percentage of the purchases made, especially of small pieces of property. The lines of proposed parks, when intelligently laid out, seldom follow the existing property divisions. If the proper boundaries are provided there will be angular lots of various sizes and shapes left in the adjacent property. In the case of a parkway, much of the necessary taking is in strips including the fronts of lots only. After making the improvement, the land which was at the rear of the various lots becomes front land of even greater value than the front formerly possessed, and it should be made available for proper occupancy. The Commission considers it absurd that it should be obliged to retain the whole of an adjoining lot 100 feet deep, when all that it required was a strip 20 feet wide. If, however, it must purchase it all it desires the authority to dispose of the part not wanted and apply the proceeds to some other part of the enterprise.

The Commission also advises that it be given the power to make such restrictions in selling the land as that it should not be used for any sort of building or other purposes that can injure the appearance or usefulness of the parkway which is being created with public funds. Private parties purchasing and improving land could exercise such rights, and it seems to the Commission absurd that a body acting for the public should be denied the same rights.

ALONG THE PAWTUXET RIVER, PROVIDENCE, R. I.

SEWER MAINTENANCE IN SAN FRANCISCO

THE principal work of the Sewer Department of the city of San Francisco, Cal., as shown in the annual report for last year, comprised sewer repair and reconstruction, sewer cleaning, catch basin cleaning, sewer and catch basin flushing, and repair and cleaning of fire systems. Some of the details of this work are reported by Mr. E. L. Nolan, Superintendent of Sewers, as follows:

There were 392 sewer breaks repaired, of which 261 were to vitrified pipe sewers and 131 to brick sewers. Seventy-eight manholes and 107 catch basins were reconstructed, and 4,765 lineal feet of brick sewers and 10,920 feet of vitrified pipe sewers were repaired.

In cleaning brick sewers the material was brought to manholes and removed from them by means of buckets and windlass. The amount removed averaged a little under 3,000 cubic yards a month, the total for the year having been 35,370. The cost of removing this amount of silt from the sewers was $60,708.95, or an average of $1.71 per cubic yard.

During the year 9,916 catch basins were cleaned, and from them were removed 8,774 cubic yards of material, or an average of .88 cubic yard for each cleaning. This material was transported to the dumps. The total cost of removing and transporting the material was $17,565.65, or $1.77 per cleaning, or $2.00 per cubic yard of material removed. Of vitrified pipe sewers, 1,690 blocks were examined and 1,628 were flushed with fresh water. In addition, 10,718 catch basins were cleaned by flushing with water. The cost of this work was $13,318.35. In addition to repairing and cleaning sewers the department repaired and cleaned 50 water cisterns for the Fire Department.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

ROADS AND PAVEMENTS

Sidewalk Obstructions in Baltimore

Baltimore, Md.—With a view to improving the condition of sidewalks, much obstructed by both temporary and permanent encumbrance, the *Baltimore Times* is publishing

Courtesy Baltimore Times
TYPICAL SIDEWALK OBSTRUCTION, BALTIMORE, MD.

a series of illustrations showing actual conditions. The reproduction shows conditions no better, no worse than the rest of the series; the variety of the obstructions is remarkable.

Early Decision on Paving Is Wanted

Dayton, O.—Councilman-at-Large John J. Hoover will introduce a resolution at an early meeting of Council this fall recommending that the Councilmen decide as early as October 30 upon what streets they will pave during 1911. This is much earlier than the question is decided usually in Dayton. The idea is, according to Councilman Hoover, not so much for enabling the plans of the paving to be thoroughly matured and the contractor to make an early start, as it is for arranging that all underground pipes which need to be repaired or which it is the intention of the Council to lay may be attended to this year and the trenches given the fall, winter and spring months in which to settle before the new paving is placed over them.

Using Heavier Asphalt Oil Than Formerly

Binghamton, N. Y.—Of the 56 miles of improved roads in Broome county, 28 miles have been oiled, reoiled or treated with calcium chloride. There has been considerable complaint this year about the oiled roads. The reason is that oil used this year is heavier and is not absorbed as quickly. Highway officials, however, are confident that ultimately the roads will be better than those treated last year and that the improvement will be appreciated by autoists and drivers. Inspector Roberts recommends the use of kerosene in removing the oil and asphalt from varnished parts of carriages and automobiles. Gasoline, he says, is generally used, but it takes the gloss from the varnish, while kerosene does not.

Like Detroit Plan of Purchasing Wood Blocks

Cincinnati, Ohio.—At a meeting of the Taxpayers' Association, Secretary Tuke gave an account of information he gained during a trip to Detroit regarding the methods employed there in purchasing creosoted wooden blocks. The city buys the blocks at $1.65 per square yard, measured in the street after they are laid. The city either lays the blocks itself or furnishes them to the contractor at cost price. "The specifications in respect to the oil merely state that the oil to be used in the treatment of its blocks shall be a pure coal-tar product, free from all adulteration," said Mr. Tuke, "and shall not contain more than 5 per cent of matter insoluble in benzine. They lay especial stress upon the timber, as it is claimed that timber with coarse fiber will not absorb the oil thoroughly and is mainly responsible for later expansion." Mr. Tuke said the Secretary of the Board of Public Works demonstrated this fact by various samples he showed him. "While they pay little attention to the percentage of carbon, they do require twenty pounds of oil to be impregnated into each cubic foot of wood," continued Mr. Tuke, "and, instead of leaving the testing to an inexperienced chemist, they employ a Chicago firm to test all blocks at the plant. When asked about the oil with but three-quarters of one per cent free carbon, they said that, in their opinion, such oil was not used anywhere and doubted whether even Cincinnati was in reality getting such an oil, as will be admitted by all visitors."

Planning Model Pavement

Indianapolis, Ind.—In the repaving of Maryland street, from Virginia avenue to Kentucky avenue, City Engineer H. W. Klausmann hopes to make a model brick pavement that can be held up as an example to other contractors for similar paving in the future. Mr. Klausmann believes that, when completed, the pavement will be equal to that of the Indianapolis Motor Speedway. Brick for the new pavement is now being piled along the street, and the fact that many of them are of irregular size has caused rumors that "cull" brick are to be used in the pavement. Mr. Klausmann says that all of these brick will be gone over and the irregular brick condemned. Bids were received twice for the street before a contract was let. Under specifications adopted recently contractors must submit with their bids samples of materials they expect to use. The sample of brick submitted by the first low bidder did not test satisfactorily and all bids were rejected. The brick submitted with the second bids tested higher than any other the City Engineer's laboratory has tested, according to Mr. Klausmann. Samples from each carload of brick to be used in the pavement also are being tested, and the City Engineer says only perfect brick will be used in the pavement.

Property Owners Object to Quality of Brick

Mansfield, O.—The dissatisfaction that has been manifested by West Fourth street property owners regarding the quality of the brick that has been delivered along that street for use in the repaving of the street reached the point of taking definite action when City Solicitor McCray was served with a notice in which Attorney George Brinkerhoff, in behalf of a number of the property owners on West Fourth street, demanded that the Solicitor begin an immediate action to enjoin the contractor from using the brick, for the reason that they are of poor quality; not suitable for such a purpose; that they are full of sand holes, checked and not uniform.

Relaying a Brick Pavement

Little Rock, Ark.—Contractor I. P. Shelby has the work well under way in relaying the brick pavement on Rock street. The pavement is to be of brick on a brick foundation, the bricks in the present pavement being used for this purpose. They are being laid flat, but on account of the worn condition only about 50 per cent of them can be used. An asphaltum filler is to be spread over and between the bricks, but on account of the difference in size of some of them it will require more filler and consequently take longer to complete the work than was at first thought.

Would Select Pavement Before Bids Are Received

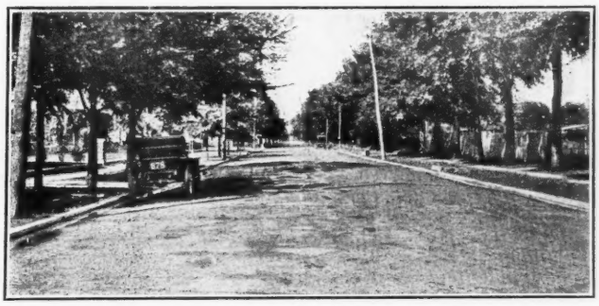
Niagara Falls, N. Y.—In an informal way, at a recent meeting, the members of the Board of Public Works took up the subject of letting contracts for pavements in Niagara Falls. They appear to be ready to make a change, and a charter amendment may be asked for providing that the kind of pavement be selected before bids are asked. This system is used in nearby cities, notably Rochester, and is said to be very successful, the taxpayers saving almost a quarter of the amount paid for the same kind of pavement laid in this city.

Ten Blocks of New Brick Pavement

Houston, Tex.—The accompanying cut shows ten blocks of new brick pavement laid by the city on San Jacinto street, out as far as McGowen avenue. It is of Coffeyville brick and makes a continuous pavement from McGowen avenue to Preston avenue, more than a mile in length. The work was done under the direction of City Engineer T. C. Tarver. The blocks were laid on four inches of concrete foundation, with one inch of sand cushion, with asphalt filler.

Length	3095 feet	Total cost	$30,293.41
Width	35 feet	Cost per square yard	$2.53 1-5
Total square yards	11,965.33		

The accompanying cut furnishes a pretty view of San Jacinto street, looking from McGowen avenue toward the



NEW BRICK PAVED STREET, HOUSTON, TEX.

city. This is one of the pretty residential streets of Houston, and greatly relieves Main street of the rush of traffic that has heretofore crowded it, the latter being only two blocks distant. The heavier traffic is resorting largely to San Jacinto street.

Concrete Culverts in Favor

Little Rock, Ark.—The policy of the Pulaski County administration, in building new public highways, is to construct concrete culverts and bridges wherever possible, and to substitute ones of concrete for those of wood wherever it can be done. The largest concrete bridge is the one on the Arch street pike, recently completed. This structure is 40 feet long and 20 feet wide. On the West Twelfth road there are six concrete structures, two 40 feet in length, two 20 feet long, one 12 feet and one 6 feet, the cost to construct which was about $3,500. There are six concrete culverts on the Pulaski Heights road, which cost about $1,200, and three are now being built near the Pulaski Heights station. On the Hot Springs pike, now under course of construction, concrete culverts, said Judge Asher, will be placed wherever needed. There are several culverts of concrete construction on the Pine Bluff road, and on the pike south of the Sweet Home station there is a concrete bridge 40 feet long and 16 feet wide. There is one now being built near the Jewish Cemetery which, when completed, will be 20 feet long and 30 feet wide. Between Little Rock and Alexander, a distance of 11 miles, there are only two small wooden bridges, the others being made of concrete. The oldest substantial culvert in Pulaski County is over a gulley a short distance east of the waterworks plant. It is an arched rock culvert and was built about 40 years ago.

City Engineer Takes Traffic Census

Rochester, N. Y.—Employes of the City Engineer's office are taking figures on the traffic over Court and Clarissa street bridges, and after this work is completed they will take similar data covering traffic over Driving Park avenue and Smith street bridges, as well as through various streets in different sections of the city. Traffic figures were taken by the City Engineer's men last week in Main street, Central avenue and Andrews street, and the data thus secured has proven of material benefit to City Engineer Edwin A. Fisher in determining whether it would be practicable to close Central avenue bridge, with the exception of the foot-walk on the north side, while repairs are in progress. Mr. Fisher said that he expects the figures now being taken by his men will prove valuable to the office, also, in determining the life of pavements in the streets where the data is obtained.

Expert Condemns Coal-Tar Treatment of Wooden Blocks

Philadelphia, Pa.—Col. J. W. Howard, of New York, consulting engineer on pavements, commenting on the condition of the wood block pavement on Market street, Philadelphia, says:

The tarry, sticky and dirty condition of the wood block pavement on Market street could easily have been avoided by the use of regular, genuine creosote oil obtainable everywhere instead of the tar-adulterated compound used. The use of this tar-adulterated compound incidentally enables a certain coal tar trust to get coal tar on the streets. The requirements that tar should be used of a certain defined kind practically prevents competition and makes a monopoly of the material for treating the wood. This "corners" the manufacturers of wood blocks, the paving contractors and the taxpayers. The wood pavement on Market street is a misrepresentation of what good wood block paving should be, as any one who is acquainted with the wood pavements of Europe, of lower Broadway, New York; Tremont street, Boston, and of some streets in St. Louis, Chicago, Indianapolis and other American cities well knows. These pavings are free from tar at all times. Wood block pavements are of two general classes: those of round cedar or other blocks formerly used in a few western cities as a temporary pavement, and the carefully cut and creosoted or otherwise treated blocks of long leaf yellow pine or other suitable wood, laid on concrete foundations. Wood block pavements require great care in construction and greater care for constant maintenance. Wood pavements are a luxury for a few wealth-lined streets of large cities, where a quiet, smooth pavement is desired without regard to cost of construction and constant repair.

Roads Commission Meets in Capital City

Helena, Mont.—The Good Roads Commission of Montana, recently appointed by the Governor to frame a good roads law, met last week in Helena, and an informal discussion of the situation followed. It was decided to secure copies of all available data and laws of other states and to give these a systematic study. On September 17 the Commission will again meet and draft a law for submission to the Legislature.

Much Concrete Bare, Waiting Paving

Minneapolis, Minn.—More than 40,000 square yards of concrete base have been laid in Minneapolis streets and left bare, awaiting the arrival of creosoted wood blocks. Conditions have become so bad that protests from all over the city have become long and loud. City officials, among them Andrew Rinker, City Engineer; E. R. Dutton, Paving Engineer, and Platt B. Walker, chairman of the Council Paving Committee, say that there is no chance of immediate relief. Most of the difficulty, they say, is due to the failure of the Republic Creosoting Company to fulfil its contract to furnish blocks. The streets are supposed to be closed to traffic, but residents, wearying of the delay, have broken down barriers and are driving over the concrete, damaging it seriously in places.

Uniform City Growth Planned by Officials

Syracuse, N. Y.—That newly developed residential tracts hereafter annexed to Syracuse or opened within the city limits should be laid out under the direction of the City Engineer is the contention of Alderman William J. Apps. The Alderman has taken the question up with City Engineer Henry C. Allen in several conferences. It is contended that if the plan were adopted it would result in the laying out of new streets in uniform connection with surrounding streets and the establishing of grades which could be permanently maintained without change. Mr. Allen has approved the suggestion. If it can be made effective by action of the Common Council, Mr. Apps will prepare and seek the passage of the necessary ordinance. Action by the Legislature may be necessary, and in such event a bill will be sent to Albany next winter. This phase of the question will be submitted to Corporation Counsel Walter W. Magee for determination. City Engineer Allen suggested that some provision should be made for the distribution of damages and benefits among the owners of adjoining property plotted under the proposed plan where the working out of a uniform plan entailed sacrifices for one land holder and corresponding advantages for another.

New Bridge Sags

Topeka, Kan.—The Fillmore street bridge across the Shunganunga creek, south of Twenty-first street, recently completed, is sinking in the center, and it has become necessary to reinforce it with truss rods. It is claimed that the gusset plates are too small.

SEWERAGE AND SANITATION

Edenburg Suffers Typhoid Epidemic.

Edenburg, Pa.—Edenburg, five miles west of New Castle toward Youngstown, is suffering from an epidemic of typhoid fever. Nine people there are now in bed with the disease, and the people of the little town are going to the hills for their drinking water, fearing lest the epidemic become general. The State Board of Health has been appealed to in an effort to ascertain whence the sickness comes. The Mahoning river is now lower than it has been for years, and nearly all of the wells in town are on a level with the river. The theory is that the water in the river oozes through the gravel land into the wells. The fact that nearly every separate case must come from some separate and distinct source has caused the physicians to be puzzled, and has created the belief that all the water in the village, if water be the source, is contaminated.

All Boroughs Must Have Health Boards

Harrisburg, Pa.—State Commissioner of Health Samuel G. Dixon has instituted a course of action which will compel all boroughs in the State to establish Boards of Health and provide for their maintenance and work. The alternative in the event of refusal will be legal action against such boroughs and the officers thereof by the Attorney-General's Department. Dr. Dixon announced such action after consultation with Deputy Attorney-General Jesse E. B. Cunningham and an oral opinion by the latter. Chief Sanitary Engineer F. Herbert Snow, who is in personal charge of the work of the State Department of Health at Wilkes-Barre during the typhoid fever outbreak there, was at once instructed by Commissioner Dixon to notify a number of boroughs in Luzerne County of the new rule. Similar notification will be sent direct from the department headquarters at the Capitol to every borough in the state which has not already complied with the act of 1905 and the rules of the department.

Bad Sewerage Conditions Disclosed

Trenton, N. Y.—Health Commissioner Eugene H. Porter has sent the following communication to the local health authorities regarding the unsanitary condition of the Trenton sewers:

Dr. A. C. Kline, Health Officer, Trenton, N. Y.:

Dear Sir—I beg to transmit herewith a report of Dr. William A. Howe, covering his investigation of the prevalence of typhoid fever in your village and to take up with you the question of changing the conditions which it appears from Dr. Howe's report are responsible for the typhoid fever that has occurred in the village.

You will note from the report that there are sewers which discharge into the stream passing through the village under such conditions as to cause sewage matters, including excreta, to be accessible to flies which, as pointed out in the report, could easily transmit typhoid infection to the neighboring houses and be the cause of the typhoid fever that has been prevalent. These sewers have manholes or inlets where the flies can enter and where, as Dr. Howe pointed out, he found flies harboring on the sewage matters. Dr. Howe also points out that where these sewers empty into the creek that sewage matter is exposed on the bed and sides of the stream upon which sewage matters flies were again seen swarming.

It is evident that in order to remove the danger which exists from these insanitary conditions that certain changes should be made in the sewerage system which will prevent the access of flies in the more thickly settled portion of the village and I would recommend that these sewers be properly intercepted by a new sewer perhaps along the line of this creek whereby the sewage could be carried to a point well below the village and if necessary pass through some simple purification works before discharge into the stream. It would also be well to so arrange the manholes or inlets in such a manner as to avoid or reduce the accessibility of flies to the sewage which flows in the sewers.

Trusting that this matter will be taken up by your Board and an endeavor made to carry out the improvements in your sewerage in accordance with the recommendations and suggestions given above, I beg to remain, respectfully,

EUGENE H. PORTER,
Commissioner.

Preventive Measures Against Typhoid at Wilkes-Barre

Wilkes-Barre, Pa.—Up to September 1, the present typhoid epidemic has developed 110 cases in the city and over 300 between Nescopeck on the south and Vosburg on the north. It has been announced by officials of the State Department of Health, who have temporary quarters in the Sterling Hotel, that Commissioner Dixon will issue orders that will effectually prevent the recurrence of such an epidemic. This is understood to mean that the water company will have to install a filtration plant. An intercepting sewer will probably be required to carry the sewage further below the city. In the meantime water is being treated with hypochlorate of lime.

National Capital May Co-Operate with Maryland Towns

Washington, D. C.—Towns in Maryland lying along or near the District line from the Anacostia to the Potomac rivers, which have been hoping to get a modern drainage and sewage disposal system by coupling the existing mains with the District's trunk line which runs along the boundary of the District, seem doomed to temporary disappointment, as Supt. Asa E. Phillips of the Sewer Department can see no way at present to overcome several difficulties which lie in the path of this project. First and foremost, a study of the topography on maps secured for the purpose shows that it would be a physical impossibility to connect these Maryland suburbs with the District system in the way indicated. This is the opinion of Supt. Phillips, who says, however, that a careful personal study of the ground may reveal some method of connection. Owing to an enormous pressure of work in other directions, he has not been able to make a personal inspection of the land. However, the report of the Sewer Department now being prepared by Mr. Phillips will have a strong recommendation for a metropolitan system which will include the towns mentioned as well as hundreds of other localities which drain into the Potomac and the Anacostia rivers. This is one of the very largest projects which the engineers of the District government have under consideration. When the many details of this project are worked out it is assured that all the Maryland towns in Rock creek valley, along the Potomac and Eastern branch, will send their drainage right through the District system into the big pumping station in southeast Washington. Besides the physical problems to be solved there is the question of jurisidiction. The State of Maryland will have to co-operate with the District of Columbia. A bill introduced in the Maryland Legislature last session provides broadly for the formation of a commission to decide this big drainage question, and under that bill, it is believed by Mr. Phillips, the first steps toward the creation of a board or commission to consider the matter can be taken.

WATER SUPPLY

Water Pure Despite Low Stage

Columbus, O.—The examinations of Dr. A. J. Beer, City Bacteriologist, of the city water for the month of August has proven that the low condition of the water at the dam has not affected its purity. All of the tests made showed an absence of colon bacilli, and the water will be reported as pure. "We have got something standing between us and the low water at the dam in the filtration plant," said Dr. Beer. "The plant is certainly doing its work."

Wants New Pumping Station for Detroit

Detroit, Mich.—John Gillespie, Water Commissioner, who returned with Mayor Philip Breitmeyer, spent much of his time while away studying the water systems of large cities, having an eye particularly for examples of the merit of the reservoir plan, such as is advocated for Detroit. His investigation convinced him that to build a reservoir would be an unsatisfactory way of improving the city's water service. "Why spend a heap of money for a reservoir when the city has a natural reservoir within reach?" he asked. "Lake St. Clair is a natural reservoir for Detroit, and another pumping station is all that is needed to place it in actual use. The cost of a second pumping station would be very small compared to the cost of a reservoir.

New Reservoir, Used Too Soon, Is Cracking

Forest Grove, Ore.—The water was turned into the new reservoir here too soon, causing it to crack in one place. It is thought it can be easily repaired.

Fort Wayne's Water Is Pure

Fort Wayne, Ind.—State Chemist Bishop has made a report on the Fort Wayne water, pronouncing it free from intestinal bacteria and safe to drink without boiling. The percentage of chlorine found in the water is very low. A short time ago an unfavorable test had been made of a sample of water drawn from a main near a dead end. Since then the main has been flushed with the result that the chlorine test was reduced from 3.6 to 0.4.

Eight Millions for Municipal Water Works

Denver, Col.—By a vote of 3 to 1 the city voted September 6 $8,000,000 bonds to construct a municipal water plant. Federal Judge Lewis the previous day issued a temporary injunction forbidding the issuance of such bonds until their legality could be passed upon by the U. S. Court of Appeals, but refused to stop the bond election.

Improved Water Pressure in Milwaukee

Milwaukee, Wis.—On October 1 increased pressure water service will be given to residents of the south side as a result of the completion of the tunnel under the East Water street bridge and the new feeder mains. The pipe under the 400-foot tunnel was placed in position last week, and after 16 feet more of concrete work has been completed the work of connecting the mains will be performed. The work of laying the balance of the large main on Clinton street will be finished this week. According to City Engineer Charles J. Poetsch the large mains will be in position on other streets by October 1.

Break in Water Main

Youngstown O.—While workmen at the new Rayen School annex were making a connection to the water main in Wood street, last week, the pipe burst and sent a column of water into the air as high as the third story of the

Courtesy Youngstown Telegram

SMALL BUT POWERFUL STREAM FROM BROKEN MAIN

school building. The force of the stream was terrific and large planks which were over the hole were thrown to one side. The cut shows the break shortly after men from the water works began to turn off the water in the main.

River Used as Water Supply May Freeze Solid

Grand Forks, N. D.—The City Council will be asked at its next meeting to take steps towards insuring the city a supply of water during the coming winter season, as Red Lake river, from which the supply is now secured, is so low that there appears little possibility of its being able to give the amount of water needed. If no rains fall during the time intervening before the river freezes, the entire flow will be stopped, as it will freeze to the bottom. The plan of action favored is the construction of a large dam across the mouth of the river at once, thus storing up a large quantity of water that would become available for use after the freezing-up time arrives.

South Norwalk Water Supply in Grave Danger

South Norwalk, Conn.—Wilton lake, which supplies this city and all its suburbs with drinking water, is covered with dead fish. Tons of big carp and eels that weigh upward of six pounds apiece are being carted away and buried. Residents fear that the present scourge of typhoid fever has been caused by the contamination. State Chemist John A. Newlands, of New Haven, and the local Water Commissioners towed a quantity of sulphate of copper around the lake last week, the intention being to rid the reservoir of algæ. Whether or not the solution was too strong is not known, but every fish in the lake was killed.

STREET LIGHTING AND POWER

Ten Years' Operation of Amsterdam Gas Works

Amsterdam, Holland—Consul Henry H. Morgan, of Amsterdam, in a report on the municipal utilities of that city states that on August 10, 1908, the gas works celebrated their tenth anniversary under the management of the municipality. The Consul gives the following data in regard to their operation: On August 10, 1898, the personnel amounted to 800 persons, which had increased to 2,072 on August 10, 1908. During the first year of municipal management the wages paid amounted to $253,745, whereas during the tenth year $672,008 was paid. The total wages paid during the past ten years amounted to $4,942,038. The quantity of gas delivered during 1898 amounted to 31,278,903 cubic meters, as against 82,653,958 cubic meters during 1908. The number of gas meters in use increased from 25,500 to 95,934. The following amounts have been paid during the 10 years the gas factories have been under the management of the city: Interest on capital, $2,170,334; paying off loans, $1,955,822; contribution to the municipality, $3,341,165; written off, $2,692,490; special reserve fund, $442,200; purchase price of factory, $6,917,002; for improvements, $3,947,586; total, $10,864,579. As there was written off $2,692,490, the value of the gas factories after ten years, including pipes and grounds, amounts to $8,172,089. The cost of maintaining the factories in 1908 was $139,083, and expenses outside the factories aggregated $57,933. The total receipts of the gas works in 1908 were $2,979,397, and the total expenditures $1,795,759, leaving a balance of $1,183,638. The amount of coal used for distillation was 206,437 tons, and the average amount of gas produced per 100 kilos (220 pounds) of coal was 29,837 cubic meters. The deliveries of coke amounted to 4,029,266 bushels, of which 2,818,634 bushels were uncrushed and 1,210,632 bushels crushed. Pearl coke deliveries aggregated 379,595 bushels, and coke siftings 295,355 bushels. Coal tar produced amounted to 8,896 tons, or 9.44 pounds per 220 pounds of coal.

Water Shut Off from Plant, Electricity from City

Phelps, N. Y.—Phelps was in darkness August 28, so far as electric lighting was concerned, owing to the existing difficulty between the lighting company and the Water Commissioners. The Water Board, by diverting the water from the main supplying the section in the lighting company's locality, effected a shutdown at the electric light plant, it being quite impossible to obtain sufficient water for the boilers from any other source. A great deal of inconvenience was experienced at various business places, and it was necessary to resort to candles and discarded kerosene lamps for light. Water was shut off on account of the refusal of the electric company to pay a bill.

Steam Is Legally Water

San Francisco, Cal.—City Attorney Long has informed the Board of Public Works that the Equitable Light and Power Company has the right to lay pipes in the streets of San Francisco for the purpose of "supplying the inhabitants of the city and county with steam and hot water for heating purposes" without first obtaining therefor a privilege, or franchise, from the Board of Supervisors. He says that the company's right to do so is provided for by section 19, article XI of the constitution of California, which allows similar companies, "under such general regulations as the municipality may prescribe for damages and indemnity for damages," to use the public streets for laying down pipes and conduits therein, "so far as may be necessary for introducing into and supplying such city and its inhabitants * * * with fresh water for domestic and all other purposes." Construing this section, the City Attorney, by implication, holds that steam is, in reality, water, giving the dictionary definition of steam to be "the elastic aeriform fluid into which water is converted when heated to the boiling point; water in the state of vapor." He says that there can be no question but a public service corporation, under the constitution, has the right to lay pipes for the supplying of water, either hot or cold, to the public, without obtaining a franchise, or permit, therefor; but he adds: "The supplying of steam alone would present a different question."

Engineer Recommends Municipal Lighting Plant

Binghamton, N. Y.—The Special Municipal Lighting Committee of the Common Council, consisting of Aldermen Hastings, Davenport and Sampson, City Engineer Giles and Corporation Counsel Mosher, has transmitted to the Common Council the report of Alton D. Adams, the expert engineer engaged to assist the committee in its investigation into the street lighting problem in Binghamton. Briefly stated, the conclusions reached by Engineer Adams are that Binghamton is now receiving a poor grade of street lighting and paying for it a sum greater than a much better service would cost if supplied by a municipal plant. If Engineer Adams' figures are correct, the city can erect and equip a municipal plant for $143,000, and operate it, together with interest on the investment, for a sum much lower than the annual bill of the Binghamton Light, Heat & Power Company for street and public building lighting. Mr. Adams finds that the Rockbottom dam does not develop sufficient power to operate an electric plant, but he says there is undeveloped water power within easy transmission distance of the city that might well be investigated. Should the city enter the municipal lighting field Mr. Adams believes a municipal system of subways for all classes of wires would prove advisable.

Incinerator to Supply Power for Pumping Sewage

El Paso, Tex.—The city expects to have in operation by next April a combined sewage treating and garbage incinerating plant. The incinerator will supply power for pumping the sewage. The sewage after filtration will be used for irrigation purposes.

Rate Cut to Kill Competition

New York, N. Y.—Charging that the New York Edison Company was discriminating in rates so as to force small electric lighting plants out of business, thus throwing many thousands of engineers and firemen out of work, the executive boards of the International and National Associations of Steam Engineers, at a joint meeting at the Irish-American Athletic Club, 110 East Fifty-ninth street, last week perfected plans to bring the matter to the attention of the people and the Public Service Commission. Electric lighting plants owned and formerly operated by the city have been closed down, and the Edison Company is now supplying current to the city at an enormous advance in cost, it was also charged. The money that the Edison Company is losing in supplying other concerns at small cost in order to drive them out of business is added to the consumers' bills, the engineers declare, so that consumers are paying two and three times more for lighting than they should. Within the next few days the combined engineering associations will send to consumers in the city 50,000 circulars setting forth the facts. Coupons will be attached, and the recipients will be asked to communicate direct to the Public Service Commission demanding an investigation. If relief is not obtained in this way, the engineers assert that they will take the matter before the next Legislature.

Prevents Connection of Two Systems of Gas Mains

Richmond, Ind.—When the Richmond Light, Heat and Power Company attempted to connect its street mains with those of the Richmond Natural Gas Company preparatory to using the natural gas mains for artificial gas, policemen interfered and two foremen and a gang of workmen were arrested. The Richmond Light, Heat and Power Company, which recently purchased the street mains and other property of the natural gas company, was notified several weeks ago that it must not attempt to use the natural gas mains for artificial gas, as the franchise of the natural gas company prescribed that only the natural product could be carried through its mains. The city is attempting to force the Richmond Light, Heat and Power Company to obtain a special franchise and hopes to include a new schedule of rates which will give the citizens service at a price much less than $1.25 a thousand cubic feet, the prevailing rate of the company. The natural gas supply was shut off, and the public service company, evidently believing that the connection of the two lines could be brought about without attracting attention, proceeded to carry out its plans. The city's representatives had been expecting the move and promptly had the workmen arrested. The city probably will ask the Circuit Court for a restraining order to be issued against the Light, Heat and Power Company.

FIRE AND POLICE

Suburb Now Protected by Fire Department

Augusta, Ga.—The Fire Department is now able to respond to box alarms from Somerville. Four boxes have been installed, one at the Bon Air Hotel. The expense was considerable, $1,300, as 8½ miles of wire had to be used. There are several ways of reaching Somerville, which is on a considerable elevation, some of them over hills and others through sand. Trial runs will be made to ascertain the best routes.

For Ideal Police Force

Chicago, Ill.—With a special "school of instruction" for probationary patrolmen, Chief of Police Leroy T. Steward plans to provide Chicago with the "most thoroughly trained, excellently equipped and splendidly capable constabulary in the world." His plans in detail have been announced and contemplate a thorough course in discipline, police duties, demeanor toward the public and in the city and state laws relating to the Police Department, and such a military training as will make the additions to the force, Chief Steward hopes, ornaments as well as efficient guardians of the peace. In addition they are to be trained in the preparation of their cases against prisoners and taught how and when to shoot straight. Chief Steward detailed Lieut. Nootbar, one of the strictest disciplinarians in the department, as chief instructor. His assistants will be two sergeants selected by the chief on their records. At the end of the six-month probation the instructor will report to the chief the probationer's efficiency, and if it is up to the grade he will be regularly appointed to the force.

Auto Damaged by Collision Again in Service

Macon, Ga.—The Webb automobile fire engine is again in commission. This is the same auto engine which figured in the disastrous wreck due to a collision on lower Cherry street, several months ago, costing the lives of three firemen. At that time it could make the speed of 70 miles per hour, but now its speed has been reduced to a maximum of 30 miles.

Reinforced Concrete for Training Tower

Rochester, N. Y.—Favorable progress on the new training tower for the Rochester Fire Department is reported by Commissioner of Public Safety Charles S. Owen. The tower is being erected on the premises of the Genesee street fire house, and the framework is already completed. The plans, drawn by Fire Marshal Herbert W. Pierce, provide for the use of reinforced concrete in the construction of a portion of the tower, and the same material will be used in all the floors.

Trenton Claims Finest Fire Auto

Trenton, N. J.—The city's new automobile fire engine arrived last week fresh from the Fire Engineers' Convention at Syracuse, N. Y., and has been formally accepted by the city after official tests. Trenton claims in this apparatus the most modern motor engine in service anywhere in the United States. It attracted considerable attention at the convention and was one of only three separate pieces of fire-fighting machinery exhibited by the Webb Company as recent improvements over previous patents. There are six cylinders in the new auto, as against four in the first similar engine adopted by the local Fire Department, and there are several other more or less striking advantages in the new model. It is higher, carries more weight and is equipped with larger and more powerful appurtenances. Chief Allen and the firemen are delighted with the machine and feel that it will add nearly 100 per cent to the efficiency of the present apparatus.

High Pressure and Motor Apparatus Wanted

Washington, D. C.—Following a report by Chief Frank Wagner, made after his return from the Syracuse Convention of the International Association of Fire Engineers, on high pressure water systems for fire protection, the Commissioners will incorporate in their estimates this coming year a request for $750,000 for the installation of a service of this kind. Chief Wagner, as a result of his observations, had his faith in motor-propelled apparatus strengthened, and hopes that the Commissioners will ask Congress for an appropriation for auto engines.

GOVERNMENT AND FINANCE

Inquiry Into Conditions in Public Works Bureaus

Chicago, Ill.—The task of increasing the efficiency of the Department of Public Works and its several bureaus has been begun by Deputy Commissioner Oscar Hewitt. This inquiry was opened by a request to each of 1,700 employes of the department to fill out a four-page blank stating the details of his work and making recommendations for changes in any of them from his civil service title to the methods of operation with which he is familiar. The opening instruction on the blank was as follows:

State your idea in detail of your duties. State what you are responsible for and give a general idea of the amount and character of your work. If you know of any way to save money or give more or better service for the same expenditure, or of something which should be done which is not, or of something done with a loss or waste to the city, or of anything else which would better the service given by the municipality, give it under "Suggestions for improvement in the service."

Spaces followed for statements of the employe's age, address, title, class and grade under civil service, salary, place of employment and working hours. Then a page was left for a statement of his regular duties and the work performed in addition to his regular duties. The third page was left for a detailed description of the work performed on a certain day and the last page for "suggestions for improvement of service." The blanks were sent to the bureaus of streets, sewers, water, engineering, city hall, maps and plats. Criticisms of the organization of nearly all of them were made by the Merriam commission without detailed recommendations as to methods of reorganization except in scattered instances where the abolition of positions was urged.

Another Texas Town Wants Commission

Goliad, Tex.—At a large mass-meeting held last week at the Court House a committee of three was appointed to prepare and circulate a petition for another election to incorporate the town under the commission form of government. Sentiment has changed since the last election and the proposition will undoubtedly carry.

Three Plans of Government for South St. Paul

South St. Paul, Minn.—With a newly appointed commission of freeholders named by the Dakota County District Court at work upon the remodeling of the charter of South St. Paul, differences of opinion among the members of the Board have arisen which promise some lively debates before the exact variety of municipal administrative machinery is decided upon. At the first meeting of the commission a strong plea for the commission form of government was made by George Kramer, a member, and others were inclined to favor the plan. The charter commission will have this proposition to consider together with that calling for a simple revision of the present form of government. Still another plan, which has many backers, is annexation to St. Paul. These three solutions of the problem for which the commission has been called together are the principal ones of merit which will be given consideration.

Curfew Law Passed by New York Town

Yonkers, N. Y.—After considerable agitation and long consideration, the curfew law has been enacted. It prohibits children under 16 years of age to be on the public highways unattended after 10 o'clock at night.

STREET CLEANING AND REFUSE DISPOSAL

Enthusiastic Over New Garbage Plant

Columbus, O.—The officials of Eastern cities are enthused over the up-to-date features of the Columbus garbage reduction plant, according to Director of Service Harry Holton, who has returned from a trip to Boston, New York and Philadelphia with Supt. Osborne of the Columbus garbage plant. The trip was made to determine if Eastern plants could throw any light on certain problems encountered in Columbus in the operation of the new plant. Director Holton said that when the officials in the East saw the plans of the Columbus plant they became enthusiastic. One superintendent declared that Columbus had the most up-to-date plant in the United States.

Sprinkling Contractors Collect Better Than City

Dayton, O.—Though four months of the sprinkling season have now passed, only $1,265.45 has been reported to the Auditor's office in payment for the sprinkling assessments. For the first time, this year the city officials thought to simplify the operation of the sprinkling department and avoid annoying the consumers by doing away with the old plan of collecting sprinkling assessments. Under the old plan the man who held the contract for sprinkling any street collected the assessments from the property owners on that street. Some of the sprinklers were better collectors than others, and the consumers as well as the sprinkling contractors were annoyed by the plan. This year it was decided that the city would make a loan of $12,000 in anticipation of the revenue from street sprinkling and operate the department with this money until the property owners came voluntarily to pay their sprinkling bills at the City Treasurer's office. For some reason, possibly because they are not dunned for the money, those enjoying the privilege have not been conspicuously prompt in the payment of their assessments.

Wants Auto Garbage Wagons

Duluth, Minn.—Dr. H. E. Webster, Health Commissioner, has requested that the Health Department be allowed an extra $30,000 for the installation of a complete system of municipal garbage collection. Dr. Webster declared emphatically that it's either a question of municipal collection or the erection of additional incinerators. He maintains that the city is getting so big, and is so spread out, that the one central incinerator is not sufficient. He wants at least two auto-truck garbage wagons, one for the East End and one for West Duluth. With these he believes that the entire city could be covered in excellent shape for several years to come. They could get over big distances, carry large loads, and make much quicker time than would be possible with teams.

To Increase Street Flushing Facilities

Louisville, Ky.—Five new flushers and thirty mules are to be purchased by the Board of Public Works, to be used in cleaning the streets of Louisville. The city owns ten flushers at the present time. The thirty additional mules are being purchased so that the machines can be operated twenty-four hours each day instead of the present run of twelve hours. When the new mules and flushers are put in operation twice the amount of flushing can be done as at the present time. The Board delayed ordering the additional stock until the new city stables at Eighth and Chestnut streets were well under construction, as the present facilities for caring for the city's live stock are inadequate. The Board has also decided to abolish the iron one-mule catch-basin wagons. In their stead ten new four-wheeled wagons have been ordered. Two mules will be driven to each. The old wagons have practically served out their life of usefulness. They were very wearing on live stock because of the two-wheeled design.

New Form of Snow Removal Contract in New York

New York, N. Y.—Commissioner William H. Edwards of the Street Cleaning Department is advertising for bids for snow removal for the coming winter. The advertisement reveals, in part, the effect of the work of the Board of Estimate's snow committee, consisting of President John Purroy Mitchel of the Board of Aldermen, now acting Mayor, and President George McAneny of the Borough of Manhattan, which was appointed last winter to draft satisfactory forms of snow removal contracts. It reads as follows:

For contracts for hiring by the Commissioner of Street Cleaning for the purpose of removing snow and ice from the streets of the City of New York, such and so many horses, carts or other vehicles of various sizes and capacities, as well as machine or other devices suitable for the purpose, at agreed rates or prices per load, per gang, per length of haul, the rate or price to be made for each different class of vehicle or device hereinafter described.

The new form of advertisement and contract is intended to eliminate payment for snow not actually removed and is a substitute of payment per cubic yard based on the amount of snowfall multiplied by the area supposed to be cleared. Proposals for the work are to be opened September 15.

RAPID TRANSIT

May Lose 3-Cent Car Rate

Cleveland, O.—The Cleveland 3-cent carfare is in danger, as the Cleveland Railroad Company last week announced that it would discharge 200 men in the track department. Large deficits are given as reasons for the move. Three-cent fare is assured until December 1, but if the present surplus proves inadequate the rate will be increased to 4 cents.

Detroit Mayor for Municipal Ownership

Detroit, Mich.—Mayor Philip Breitmeyer is about ready to come out flatfooted for municipal ownership, his friends say. He will make one more attempt to get the Detroit United Railways to dicker with the city, and if this fails, as his previous attempts have failed, he will decide that there is only one hope left. His tendency that way is shown in the statement he issued last week saying that in case municipal ownership was adopted at the fall election and he was re-elected, he would support it.

Plans 3-Cent "L" in Queens

New York, N. Y.—The Rapid Transit Commission of Queens will begin active work in a few days to obtain consents for the proposed elevated structure from the Queensboro Bridge, tentative plans for which were submitted recently by its routes committee to the Public Service Commission. The route as proposed is from the Queensboro Bridge north to Flushing avenue, thence east across Trains Meadows to the intersection of Jackson and Flushing avenues, along the Jackson Causeway to Whitestone avenue, Flushing, and north to Fourth avenue, the southern boundary of the Malba section on the north shore peninsula. The return route will be by way of Hoffman boulevard to the Queensboro Bridge. Plans prepared by Julius Harder, of Bayside, and J. H. Gray, designer of the Chicago elevated system, call for a structure more ornate, less costly and less noisy than those in Manhattan and Brooklyn. The cost is fixed at about $125,000 a mile. On the assessment plan it is estimated that individual lot owners would be assessed not more than $25. If the Commission approves the plans the road will be operated for a three-cent fare; when connections are made with the route to be built through 59th street, Manhattan, across the Queensboro Bridge, the fare will be increased to five cents.

For Over-crowding Cars

Pittsburg, Pa.—The city has served notice that it will institute immediately no less than 100 suits against the Pittsburg Street Railways Company to compel it to observe the new ordinance prohibiting the over-crowding of cars. A fine of $10,000 is possible if the city wins its suit.

Interstate Tunnel for Staten Island

Richmond, S. I., N. Y.—William S. Van Clief, of Staten Island, has announced that application has been made by those interested on the island to the New York Public Service Commission for a franchise to build a tunnel under the Kill von Kull, through Staten Island and under Staten Island Sound. The plan that the Staten Islanders have in mind is to secure tube connections with New York City by means of a tunnel from Port Richmond to Bergen Point, thence to West Eighth street, Bayonne, to the Central tracks, along these tracks to the Communipaw avenue station of the Central and to connect with the Hudson tunnels, using them to get to New York. The line contemplated would extend from New York to Perth Amboy. The Staten Islanders say they feel assured that the New York authorities will extend to them such privileges as they need in such provinces as the New York authorities have jurisdiction over, and they expect the New Jersey officials to aid them in such matters as have to have their sanction.

Favorable Report on Municipal Subway System

Toronto, Ont., Can.—James Forgie has submitted a report to the Mayor and Board of Control recommending a temporary rapid transit system, to cost $9,375,000, later to become a part of a system costing $23,000,000. The complete system would be 11.64 miles long and would require several years to complete.

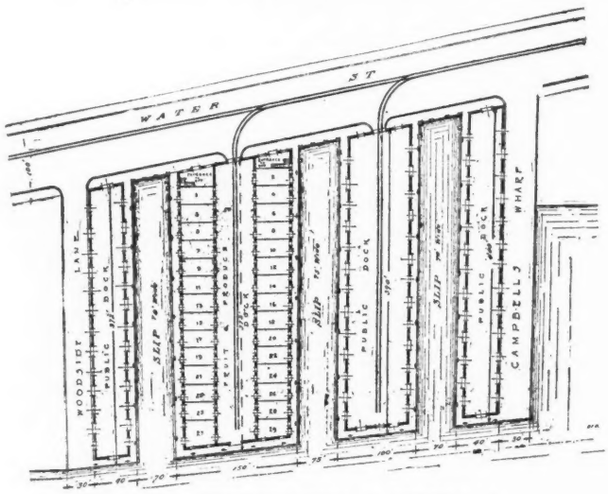
MISCELLANEOUS

Elms Doomed in City Parks

Elizabeth, N. J.—The beautiful elm trees of Jefferson and Scott Parks are doomed, says Owen Farrelly, of the Committee on Parks and Shade Trees of City Council, who claims that the fight against the elm tree beetle has been lost and that all the elm trees of the city which are not dead already are dying. Mr. Farrelly says that the only practical method of providing shade in Elizabeth parks for the future is the setting out of another variety of trees. Elizabeth is one of many cities that has been waging a persistent fight against the elm tree beetle which is destroying handsome elms in all parts of the country. In some instances, State Forester Alfred N. Gaskill says, the trees have been saved, but the persistent warnings which he has sent out, as well as advice offered by tree experts, have been ignored in many cities.

Municipal Docks to Pay for Themselves

Norfolk, Va.—With estimates of revenues sufficient to meet the initial costs and afford $10,000 annually for maintenance, plans for an elaborate system of city docks between Woodside lane and Campbell's wharf, extending back to Water street, were made public last week by the Industrial Commission. Basing its figures upon carefully



PLAN FOR WIDENING DOCKS OF NORFOLK, VA.

compiled data and technical information furnished by Col. Mason M. Patrick, U. S. Army, the committee which had the plans drawn and has written an interesting report discussing the subjects of expenditure, revenues, the importance to Norfolk of better public facilities of this character, and the experience of other cities with similar enterprises, has estimated that three slips, one 75 and the others 70 feet wide, the erection of docks and warehouses on intervening space, which in the aggregate is approximately 290 feet, buying the land and present buildings of the site and incidental features would cost $1,200,000. The committee has estimated that from operating the enterprise the city would derive an annual revenue of $120,000, which, it is suggested, would pay $60,000 5 per cent interest on $1,200,000 city bonds, $50,000 for sinking fund, and leave for maintenance $10,000. Among matters incident to building the docks is a proposition to widen Water street to 100 feet.

City of Spokane Will Have Garage

Spokane, Wash.—The city of Spokane is to have its own garage to take care of the four automobiles now owned by it and for any others which may be added to the city's equipment. Work was commenced last week on a one-story brick building on the city's property at the corner of Mission avenue and Normandie street to serve for the purpose. It will be 30 x 44 feet in dimensions and cost $1,500. The Health Department, the Fire Chief, the Engineering Department and the Board of Public Works own automobiles. The city's chauffeurs will themselves care for the machines when the new building is finished.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Term of Police Offic—Metropolitan Bill

City of Louisville v. Ross.—Bill of Rights forbids the General Assembly to create any office, the appointment of which shall be for a longer time than a term of years, but the Constitution provides specifically the terms of office and the manner of election and appointment of various municipal officers, and then declares that other officers of towns or cities shall be elected by the qualified voters therein, or appointed by the local authorities, and, when elected, their terms shall be four years, and until their successors shall have qualified. Held, that the Constitution did not limit the term of appointive municipal officers to a term of years, and hence the metropolitan police bill, providing for the appointment of policemen to hold office either during good behavior or at the pleasure of the appointing power, was not unconstitutional as authorizing an appointment for a longer time than a term of years.—Court of Appeals of Kentucky, 129 S. W. R., 101.

Reserve Policemen—Appointment

Frank v. City of Decatur.—Acts 1905, relating to municipal corporations, and providing for the appointment of policemen in fifth-class cities by the Common Council or by committees appointed by ordinance, annulled an ordinance of such a city authorizing the Mayor to appoint special policemen; such power in the Mayor not being preserved by section 8682, subdivisions 1 and 5, requiring him to enforce the ordinances and laws and making him responsible for good order; nor by section 8965, providing that where no method is provided in the act for executing a power an applicable method provided by another section or law may be followed.—Supreme Court of Indiana, 92 N. E. R., 173.

Officers—Salaries of Councilmen

Walker et al. v. Village of Dillonvale.—Section 197, Municipal Code, as amended in 1904, fixes the compensation of a member of Council of a village at $2 for each meeting, not to exceed 24 meetings in any one year, and it is not necessary that it should have been fixed by an ordinance, passed before the commencement of his term of office, but the Council may authorize its payment by a resolution passed after the services have been rendered.—Supreme Court of Ohio, 92 N. E. R., 221.

Change of Street Grade—Damages

Meardon v. Iowa City.—A "change of the grade" of a street is an actual physical change in the surface thereof, and, where an established grade is changed after property has been improved according to the established grade without injuring or diminishing the value of the property, the city is not liable for changing the grade, and, where the city did work in altering the grade and then ceased operations for such length of time as to make it appear that the work was completed, the owner of abutting property would only be entitled to recover for the injury occasioned by what had been done.—Supreme Court of Iowa, 126 N. W. R., 939.

Bond Election—Correction of Error

Gooch v. Town of Patterson.—A clerical error as to the date of the payment of interest, patent on the face of election proceedings, may be corrected by the supervising municipal authority before the bonds are issued.—Supreme Court of Louisiana, 52 S. R., 555.

Officers—Terms—Statutes

King v. City of Ottumwa et al.—Code, requiring the Council in cities of the first class at the first meeting after the biennial election to appoint a Street Commissioner, fixes the term of such officer for two years, and a qualified veteran appointed to the office may not invoke the soldiers' preference law as against a qualified veteran appointed at the close of the two-year term.—Supreme Court of Iowa, 126 N. W. R., 943.

Damages to Land from Stream Pollution

Kellogg v. City of Kirksville.—On suit for damages caused by a city polluting a stream by discharging sewage, pleas that the cause of action did not accrue within five years before the petitions were filed are insufficient to establish a right in the city by user. A suit brought in 1905 for damages resulting from the pollution of a stream by a city through the extension of a sewer in 1901 or 1902 is not barred by limitations. Recovery by plaintiff, in a suit against a city for polluting a stream by discharging sewage, will be regarded as awarding permanent damages, where the complaint and the trial proceeded upon the theory that such damages were sought. On suit against a city for polluting a stream by discharging sewage, plaintiff could show that sediment collected in holes and pools along the course of the stream; $3,150 is not an excessive recovery for permanent injuries to a landowner, caused by the pollution of a stream by a city through discharging sewage.—St. Louis Court of Appeals, Missouri, 129 S. W. R., 57.

Fiscal Management of Water Works—Bondholders' Lien

Culbertson v. City of Louisville et al.—That refunding water works bonds secured by mortgage were issued in the name of the Louisville Water Company, while the title to the mortgaged property was in the city, would not affect the validity of the bondholders' lien.—Court of Appeals of Kentucky, 129 S. W. R., 95.

Parking of Cars—Nuisance

City of New Orleans v. Lenfant et al.—An ordinance which absolutely prohibits the doing of things, upon property which appears to be the subject of private ownership, which are harmless, in themselves, and may or may not become nuisances, according to the manner in which they are done, is unconstitutional, because it seeks unduly to regulate and trammel the use of such property; and where it imposes arbitrary and unreasonable obligations it is illegal, for that reason. "Parking," literally speaking, is the assembling of things or animals within a park, as the parking of artillery, or the parking of deer; and, as applied to an ordinance forbidding the parking of cars at a certain place, it means the assembling of cars, few or many.—Supreme Court of Louisiana, 52 S. R., 375.

Warrants—Judgments

Town of Jonestown v. Ganony.—Under Code 1906, making it the duty of the Town Clerk to register all warrants issued by the Board of Supervisors, to be paid in the order of their registration, on a petition for mandamus to enforce a judgment against the town, the court may require the municipal authorities to issue a warrant in payment of the judgment as required by section 3379, and direct that the warrant be filed with the treasurer and have priority from the date of filing over all other debts payable out of the general revenue of the town.—Supreme Court of Mississippi, 52 S. R., 579.

Setting Aside Ordinances

Rosencrans v. Eatontown Tp.—Where a prosecutor has a direct interest in setting aside a municipal ordinance, if any of the reasons for so adjudicating are valid and at the same time is a cause for which the court will vacate the ordinance in toto, the court may adjudge it to be void, before any action to enforce it has been begun. The fact that an ordinance prescribes that both fine and imprisonment may be inflicted, when one or the other only is authorized by statute, will not render the ordinance wholly void, in advance of any attempt to enforce it. An attack upon an ordinance by a prosecutor before conviction thereunder, declared nugatory, because none of the reasons assigned go to the invalidity of the whole ordinance, under all conditions.—Supreme Court of New Jersey, 77 A. R., 88.

Streets—Obstructions—Abatement

City of Manchester v. Hodge et al.—Where in proceedings by a city it was determined that defendants' rights in a street were subordinate to the reasonable use thereof by the public, and that their occupation of half of the street impeded travel, plaintiff on thereafter obtaining an order for removal of the obstructions was entitled to reasonable counsel fees.—Supreme Court of New Hampshire, 77 A. R., 76.

NEWS OF THE SOCIETIES

American Public Health Association—The thirty-eighth annual convention was held at the Hotel Pfister and the Deutscher Club, Milwaukee, September 6-9. President Dr. Charles O. Probst, Columbus, O., opened the convention. Mayor Seidel welcomed the members in behalf of the city, Judge J. M. Turner for the State and Dr. W A. Batchelor on behalf of the medical profession. Dr. Richard Lewis, Raleigh, N. C., responded for the United States, Dr. Frederick Montizambert for Canada, Dr. Jesus E. Monjaras for Mexico, and Dr. Frederico Teraldas for Cuba. In a paper on Studies in Self Purification of Streams, Dr. G. F. Ruediger, Grand Forks, N. D., expressed the opinion that typhoid fever contracted from river water is a winter rather than a summer disease. Dr. Ruediger told of experiments on the Red Lake River, which joins the Red River of the North at Grand Forks. Typhoid bacilli were floated down the river in open crates in the summer time and at the end of a ninety-mile journey only about 0.1 of 1 per cent of the bacilli were found to have survived. The destruction was due, he said, to the microscopic plants and other organisms in the water, which apparently give off substances which are harmful to the bacilli. In winter the same experiments were made, but the bacilli had to be floated under the ice, which at the time of the experiments was about thirty inches thick. The bacilli were not destroyed in as great numbers as in the summer time, for the reason, the speaker said, that the plants and sun did not have the same effect. Dr. Ruediger showed that typhoid fever was more troublesome in winter than in summer by the experience of Minneapolis last winter and Lawrence, Mass., before the installation of a filter. In a paper on Sanitary Registration of Houses in Mexico, Dr. J. E. Monjaras showed that sunlight and sanitation were the two greatest foes of tuberculosis, and that therefore prosecution of dirty houses would do more to drive out the dread disease than all else. For this reason all the houses in the City of Mexico are registered. Various pages show the location of the house, the condition of sanitation, the number of people who have died from tuberculosis in the house, with their ages and sexes, and other information. This record has been kept since 1891. It is open to the public, and people by consulting it can learn about the house into which they desire to move. The campaign against underground location for bakeries and restaurant kitchens in Chicago was told of in a paper by Charles B. Ball, Chief Sanitary Inspector. He showed that in 1907 there were 582 underground bakeries in Chicago, or 43 per cent of the total number. Of these, 282 have been discontinued by the department. The lack of natural light, the increased difficulty of ventilation, the increased liability of contamination of bakery products, decreased radiation, insufficient drainage, and the ready access of vermin were some of the disadvantages of underground locations pointed out. In new bakeries the following are required: Floor on ground level, lighting and ventilation on three sides, floors rat and moisture proof, and furniture and equipment detachable from walls. At the evening session Dr. Probst delivered the presidential address. He spoke of the increased interest of the public in matters of health and said that the common enemy of public health was ignorance. "We must increase the hours of rest and play and decrease the hours of work," he said, "One fails when he does not play, and on the other hand the man who only plays finds a wretched life and an early death. Play must be put into daily life. Alcoholic excesses on the part of workingmen are due in a great part to their desire for pleasure which is not to be had otherwise. I can not agree with those who wish to do away with Sunday baseball and suggest nothing to take its place. Time for rest and amusement must be provided for working girls, as the want of it leads to social diseases. All praise must be extended to Milwaukee for its success in closing the saloon dance hall and the opening of social centers in the schoolhouse."

State Patrolmen's Association of New York—The annual convention was held in Assembly Hall of the Chamber of Commerce, Rochester, Sept. 2-4. The following officers were elected: President, John W. Griffiin, Buffalo; first vice-president, Peter Burns, New York; second vice-president, George Kunzelman, Syracuse; third vice-president, Edward Shader, Kingston; treasurer, Michael F. Brophy, Utica; auditor, Thomas J. Delaney, Troy; secretary, Thomas P. Dolan, Albany. A resolution was unanimously adopted condemning the methods employed by the municipal government of the City of Utica in reducing former Chief of Police Brophy to the rank of patrolman and sergeant. It was also declared in the resolution that the State Association had made an investigation of the matter; that the reduction of Chief Brophy was brought about through political influences for political purposes, and that such action is most harmful to good police service. A resolution was adopted advising the executive committee of the State Patrolmen's Association to investigate the practice of saloon keepers in some cities causing the transfer of police officers from one beat to another in order that they may be allowed to keep their saloons open after hours and commit other unlawful practices.

American Automobile Association—September 26 to 29 are the new dates selected for the Third Annual National Good Roads Convention, to be held this year at St. Louis, Mo. This gathering of good roads enthusiasts and experts in highway construction promises to result in the most complete and widespread consideration and discussion of the roads problem that has ever taken place in this country. The change of dates, from October to September, was brought about by the insistent desire on the part of the American contractng engineers to hold their annual meeting at the same time and to work jointly with the National Good Roads Convention. Indicating the diversified interests involved in this convention, it is only necessary to mention the fact that officers of nine national bodies are represented on the convention committee. The National Grange includes over a million farmers, and is particularly strong in New England, the Middle and Central Western States. N. J. Bachelder, of Concord, N. H., the national master, is serving on the convention committee for the third time. The Farmers' National and Co-operative Union possesses a total membership exceeding two million, located principally in the Southern and Southwestern States, and is represented through its president, Charles S. Barrett, of Union City, Ga. The Farmers' Union has not participated in previous conventions, but owing to the very extensive interest in roads building in the South, the subject has become of paramount interest to this organization.

The United States Office of Public Roads again will send to the national convention its director, Logan Waller Page, who is thoroughly in touch with the national government's highway work. Mr. Page also gives individual attention to the international phase, and will speak upon the recent congress at Brussels. James H. MacDonald, President of the American Road Builders' Association, is again on the convention committee, though his own organization will hold its convention later in the year. The American Automobile Association supplies the chairman of the convention committee in George C. Diehl, the chairman of its good roads board, while President L. R. Speare, First Vice-president Robert Hooper, A. G. Batchelder, chairman executive committee, and Charles Thaddeus Terry, chairman legislative board, are also members of the committee.

Since the automobile is the real factor which is bringing about changed road conditions, the manufacturers of motor-driven vehicles are included in the committee makeup. L. H. Kitredge, president National Association Automobile Manufacturers; S. D. Waldron, ex-president, and R. D. Chapin, chairman of the good roads committee, are prominent in this list, along with Alfred Reeves, general manager Association Licensed Automobile Manufacturers, and C. J. Butler, of the Motor and Accessory Manufacturers.

Pennsylvania Electrical Association—The Third Annual Convention was held at Glen Summit Springs, September 13-16. L. H. Conklin, president of the United Service Corporation, presented a paper on Rates. Duncan F. Campbell, general manager Scranton Electric Company, read a paper on the Commercial End of the Electrical Business.

International Association of Municipal Electricians—The annual convention was held at Convention Hall, Rochester, N. Y., September 14-16. Mayor Edgerton made an address of welcome, to which President J. B. Yeakle and C. E. Diehl, Superintendent of Police and Fire Telegraph, Harrisburg, responded.

In the afternoon a paper was read on "Underground Work," prepared by J. B. Yeakle and Clarence R. George, and a long discussion followed on this subject and on the danger of shock from turning water on live wires. A. C. Farrand, of Atlantic City; B. H. McManus, of Wilkes-Barre, Pa.; C. E. Diehl, of Harrisburg, Pa.; S. W. Manning, of St. Paul; C. R. George, of Houston, Tex.; A. T. Pierce, of Wallingford, Conn., and F. P. Forbes, of Corning, took part.

The entire body of experts made a tour of inspection of the fire alarm telegraph station in Central avenue in the evening, and the system was explained by H. G. Kennedy, superintendent of the department.

Specialties are on show at Convention Hall by a Syracuse company, and A. T. Tinker, of the Gamewell fire alarm telegraph, has on exhibit fire alarm boxes and police telegraph apparatus. This exhibition will be open during the rest of the session.

On Thursday the sessions were held in the convention hall of Powers Hotel. A paper was read by H. G. Kennedy on "Mercury Arc and Other Rectifiers," and one by Walter M. Petty on "Lightning Protection. The principal paper of the morning was read by R. A. Smith, City Superintendent of Electrical Affairs, Norfolk, Va., who discussed the "City and National Code Rules, and the Relation of the City and Underwriters' Inspectors." In speaking of the national electrical code, Mr. Smith said:

The national electrical code is the outcome of years of study and experience of some of the ablest electrical and mechanical engineers in this and other countries, and is thoroughly reliable. It has been adopted by all electrical and mechanical engineers as a basis, and such other rules added as local conditions required.

The rapid growth of the electrical business, and the consequent changes in method of construction and materials, require frequent changes in the rules governing the installation of electrical wiring and apparatus, and therefore it is not wise to attempt to embody these rules in city ordinances, owing to the necessity for hurried changes and the slow handling of the average Council committee. An ideal inspection department would be one with a special Committee on Electrical Affairs, empowered to adopt such rules as they see best, with a clause prohibiting any adoption of a rule prohibited by the national code.

An interesting discussion was one on the "Police and Telegraph System," led by Joseph B. Smith, of Rochester, N. Y.; P. H. McManus, of Wilkesbarre, Pa., and Samuel Boone, of Baltimore, Md. Plans were suggested as to the best way of reaching the officers from the central office. In Rochester the signal lights are controlled from the office, and several suggestions were made as to the betterment of the plan. At Convention Hall the Safety Insulated Wire and Cable Company, New York, erected an exhibit and gave a demonstration of its service. In the evening an exhibition was given of the Sonorophone, an invention for reproducing and strengthening sound volume, was given. In connection with this, John Kelly, Jr., Camden, N. J., read a paper on "Wireless Telephone and Telegraphs."

On the last day of the convention H. C. Bundy, Watertown, N. Y., presented a paper on "The Relation of the Telephone to the General Organization of Fire Department Service." At the close of the reading of the paper William Ellett, Elmira, N. Y., stepped to the platform, and in a brief address presented the retiring secretary, F. P. Foster, Corning, N. Y., with a handsome silver set. The following officers were elected: President, H. C. Bundy, Watertown; vice-presidents, George Gregg, Toronto; J. B. Yeakle, Baltimore; John Kretz, Buffalo; James Craig, Toronto; secretary, Clarence George, Houston, Tex.; treasurer, C. E. Deale, Harrisburg, Pa. Harry G. Kennedy, of this city, was elected chairman of the committee on finance. St. Paul, Minn., was chosen as the meeting place for the 1911 convention.

Western Society of Engineers—The first regular meeting of the Western Society of Engineers for the fall session was held Wednesday evening, September 7, at their headquarters in the Monadnock Block, Chicago, Ill. The paper for the evening was on "High Pressure Water Service for Fire Protection," by J. B. Sando, of Milwaukee, Wis.

Calendar of Meetings

September 14-15.
Connecticut State Firemen's Association.—Twenty-seventh Annual Convention, Waterbury, Conn.

September 14-16.
League of Michigan Municipalities.—Annual Convention, Lansing, Mich.

September 15.
New Jersey State Firemen's Association.—Annual Convention, Atlantic City, N. J.—William Exall, Secretary, 88 Bruce St., Newark, N. J.

September 20-22.
Iowa League of Municipalities.—Annual Convention, Waterloo.—F. S. Pierce, Secretary, Marshalltown, Ia.

September 20-22.
Pacific Coast Gas Association.—Convention, Los Angeles, Cal.—John A. Britton, Secretary, 445 Sutter St., San Francisco, Cal.

September 20-22.
Central States Water Works Association.—Convention, Indianapolis, Ind.

September 20-23.
Kansas State Volunteer Firemen's Association.—Convention, Eureka, Kan.

September 21-23.
Massachusetts State Firemen's Association.—Thirty-first Annual Convention, Lowell, Mass.—Burton Steere, President, Springfield, Mass.

September 21-23.
Colorado Electric Light, Power and Railway Association.—Annual Convention, Colorado Springs, Col.—J. C. Lawler, Secretary, P. O. Box 938, Colorado Springs, Col.

September 21-23.
Michigan League of Municipalities.—E. R. Schreiter, Secretary, City Hall, Detroit, Mich.

September 21-23.
New England Water Works Association.—Annual Meeting, Rochester, N. Y.—Willard Kent, Secretary, Narragansett Pier, R. I.

September 26-29.
American Automobile Association in cooperation with the National Grange, Farmer's Union, American Road Builders' Association, U. S. Office of Public Roads, and National Association of Automobile Manufacturers.—Third National Good Roads Convention, St. Louis, Mo.

September 26-30.
National Irrigation Congress.—Annual Meeting, Pueblo, Col.—Arthur Hooker, Secretary, Pueblo, Col.

September 27-28.
Kansas Gas, Water, Electric Light & Street Railway Association.—Convention, Kansas City.—J. D. Nicholson, Secretary, Newton, Kan.

September 27-29.
American Society of Engineering Contractors.—Annual Convention, St. Louis, Mo.—D. F. Hauer, Secretary, 12 Park Row, New York, N. Y.

September 28.
New Hampshire State Firemen's Association.—Convention, Meredith, N. H.

October 4-6.
National Good Roads Association.—Annual Convention, Oklahoma City, Okla.

October 5-7.
Oklahoma Cement Users' Association.—Annual Convention, Oklahoma City, Okla. E. A. Mossman, 4 Chamber of Commerce, Oklahoma.

October 10-11.
Massachusetts Police Association.—Annual Convention, Holyoke, Mass.

October 10-14.
American Street and Interurban Railway Association.—Annual Convention, Niagara Falls, Ontario.—H. C. Donecker, Secretary, 29 West 39th St., New York, N. Y.

October 11-16.
American Society of Municipal Improvements.—Seventeenth Annual Convention, Erie, Pa.—A. Prescott Folwell, Secretary, 239 W. 39th St., New York, N. Y.

October 19-21.
American Gas Institute.—Annual Meeting, New York City.—A. B. Beadle, Secretary, 29 W. 39th St., New York, N. Y.

October 20-21.
Ohio State Boards of Health.—Twelfth Annual Conference, Cincinnati, O.—Dr. C. O. Probst, Secretary, Columbus, O.

October 24.
Illuminating Engineering Society.—P. S. Millar, Secretary, 29 W. 39th St., New York, N. Y.

November 14-18.
National Municipal League.—Annual Meeting, Buffalo, N. Y.—Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.

November 21-23.
City Commission Congress.—Meeting, Galveston, Tex.—R. E. L. Giles, Secretary, Galveston, Tex.

PERSONALS

ABRAMS, HERBERT R., has been promoted to the position of Superintendent of Street Construction at St. Louis, Mo., succeeding Frank D. Hudgins: Alden Chase, formerly Assistant Engineer, has been appointed District Engineer, succeeding Mr. Abrams, and George Pullen has been made Assistant Superintendent in the Second District, vice Robert F. Combs.

ALBERT, FRANK L., City Engineer of Fargo, N. D., has been appointed by the City Council a member of a commission to inspect some of the principal water purification plants in this country and Canada with a view to collecting data for use in obtaining a pure water supply for Fargo.

ANTHONY, BENJAMIN, Carbondale, Pa., has been appointed City Engineer, succeeding Bryce P. Blair, who has resigned on account of poor health.

BAAKENMAN, WM., Minot, N. D., has been appointed Chief of Police succeeding Dan Kimball.

BELSLEY, CLAY, City Engineer of Peoria, Ill., died Sept. 3; he was a graduate of Cornell University and had been City Engineer about 18 months.

BROWN, PROF. D. W., head of the Department of Civil Engineering of the Agricultural and Mechanical College, Starkville, Miss., has resigned to accept a position as construction engineer with the Du Pont Powder Company, Wilmington, Del.

CAHILL, DR. JOHN T., Lawrence, Mass., has been elected Mayor by the City Council to fill the unexpired term of William P. White.

CHAMPLIN, WM. D., Philadelphia, Pa., has been appointed executive financial secretary of the Public Playgrounds Commission.

CRAIGHILL, DR. E. A., Lynchburg, Va., has been elected President of Council, and William King, Jr., Vice-President.

FUERTES, JAMES H., New York, N. Y., has been engaged by the City Commission of Cumberland, Md., as Consulting Engineer for a new system of water supply.

HILL, C. D., Chicago, Ill., has been appointed Superintendent of the Bureau of Sewers, succeeding William E. Quinn; he was formerly Engineer of the Board of Local Improvements.

HOWARD, J. W., Consulting Engineer, New York, N. Y., has been engaged by Peters Brothers Company, Dayton, O., to devise means for abating the dust nuisance at their plant.

HOYT, W. A., Consulting Concrete Engineer, has moved his office from the Chamber of Commerce Building to the Old Colony Building, Chicago, Ill.

O'BRIEN, FRANK P., Mayor of Birmingham, Ala., died Sept. 9, in Philadelphia, Pa., where he had gone to receive treatment for nervous disorders. He was 60 years old, and had been a Captain in the Confederate Army.

POTTS, CLYDE, Civil and Sanitary Engineer, 39 Church street, New York, N. Y., has been engaged by the borough of Monmouth Beach, N. J., to design sewers and sewage disposal works.

SHANER, HARRY L., Lynchburg, Va., has been reappointed City Engineer for a term of four years. W. C. N. Randolph, Jr., has been appointed Superintendent of Water Works.

SIMPSON, JOHN, Macon, Mo., has been appointed Superintendent of the electric light plant and water works.

SINK, BERT, Kansas City, Mo., has been appointed Superintendent of the municipal asphalt repair plant.

WILLCOX, R. BOLLING, Petersburg, Va., has been elected President of Council.

MUNICIPAL APPLIANCES

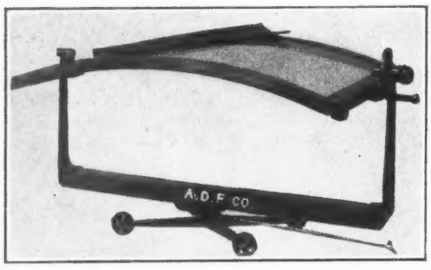
Eureka Fire Hose

The Eureka Fire Hose Mfg. Company was the recipient of many compliments from the visiting fire chiefs and citizens at the recent Fire Chiefs' Convention in Syracuse, N. Y., for the magnificent electrical sign representing its trade-mark, which was displayed on a prominent building at the corner of Salina Street, seventy-five feet above the sidewalk. The sign was about twenty feet square and made up in red,

white and green colors. The company was fully cognizant of the importance of the convention and had the following representatives in attendance: I. B. Markey, vice-president; T. B. Galbraith, assistant general manager; P. O. Hebert, Atlanta; Henry Francis, Dallas, Texas; George Hand, Chicago; H. F. Pratt, Columbus; A. Burke, Columbus; H. J. Hardy, Boston; E. M. Yarrell, Kansas City; B. L. Alvis, Denver; M. I. Crane, Philadelphia; W. P. Burke, Syracuse; M. J. Burke, Syracuse.

Drafting Furniture

The Arcus Blue Print Frame is made by the American Drafting Furniture Company, 14 Railroad street, Rochester, N. Y., manufacturers of furniture



BLUE PRINT CAR WITH FRAME

and equipment for drawing and draftrooms in the factory, office or school. In construction and manner of manipulation the Arcus blue print frame is entirely different from any other sun frame on the market. It consists essentially of a part of curved glass, against the back of which the tracings and blue print paper are forced into perfect contact by a canvas sheet stretched tight by a tension arrangement. To print with the Arcus, the canvas is rolled back, the tracing and blue print paper are laid on the glass, the canvas drawn over them and buttoned onto the steel tension shaft. The entire operation takes but a few seconds. The contact is perfect and is obtained without the expenditure of time and energy necessary in handling wooden backs and bars with metal springs. When loaded the car is run into the sunlight and the frame is revolved to any desired angle for printing. If the operator wishes to inspect the progress of the printing, he can release by a special device a small flap of canvas at one corner of the frame, without taking the tension off the remainder of the canvas. After inspection the small flap is again buttoned to the shaft and stretched to its original tension. The ease and rapidity with which the Arcus can be operated will effect a great saving of time in places where any considerable amount of printing is done.

IRON BASE DRAWING TABLE

The second illustration shows the drawing table, style AC. The specifications of the triple Arcus follows:

Size.—Tops from 31 x 42-in. to 48 x 72-in. Bases in proportion to the length of the top.

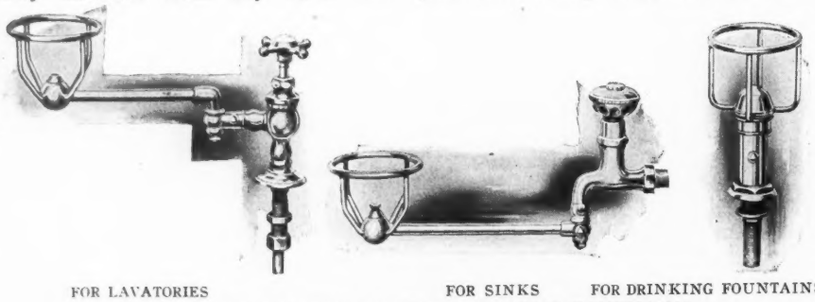
Vertical Adjustment.—From 32 to 42-in. Rack and pinion operated by the foot rest, assisted by steel springs which counterbalance top.

Attachments.—No. 4, 5, 8, 9 and 10 can be used, see page H.

Shipping Weight.—About 150 lbs., plus 4 lbs. per sq. ft. of top.

"Purity" Drinking Fountain

The "Purity" Self-Closing Bubbling Drinking Fountain, which is in use in many cities, is shown herewith. The device is so arranged that the lips cannot come in contact with the nozzle, this being prevented by a special cast brass ring guard. The bubbling stream is regulated by a loose key stop-cock at swing joint. These fixtures can be attached to sinks, lavatories and founts already installed, and can be turned to one side, which allows the use of the sink or lavatory for other purposes. This fountain is manufactured by the Jas. Barrett Mfg. Co., Boston, Mass.



FOR LAVATORIES FOR SINKS FOR DRINKING FOUNTAINS

THREE TYPES OF "PURITY" DRINKING FOUNTAINS

TRADE NOTES

Cast-Iron Pipe.—Chicago: Routine orders for fall shipment are holding out well. Quotations: 4-inch, $27; 6 to 12-inch, $26; 16-inch and up, $25. Birmingham: Local plants are well supplied with orders and manufacturers look for better prices. Quotations: 4 to 6-inch, $22.50; 8 to 12-inch, $21.50; over 12-inch, $20.00. New York: General demand is exceedingly light. Quotations: 6-inch, $23.50 to $24.

Lead.—Demand for lead is good. Outside sellers are asking 4.45c. in New York though leading interest is quoting 4.40c. St. Louis, 4,30c.

Cast-Iron Pipe—A new factor in the cast-iron pipe business is brought out by the incorporation of the Illinois Cast-Iron Pipe & Foundry Company with offices in Chicago. The capital stock of the company is $175,000, and $250,000, 6 per cent bonds will be issued. The shop will be built at Chicago Heights, Illinois, and will have a capacity of approximately 40,000 tons per annum and will be ready for business late in the fall of 1911. The enterprise is being advanced by Mr. A. M. Ozburn, the president of the company, who has been identified with the business for the past fifteen years and is known to practically every pipe buyer in the west. Mr. Ozburn states that the shop will be constructed on the most improved lines for the economical and effective manufacture of cast-iron pipe and specials, and they will be prepared to compete for all of the annual contracts for 1912, which contracts are usually made during the winter preceding the delivery required.

Solid Tires—The selection of Hartford solid motor tires on the majority of trucks taking part in North American Reliability Contest for commercial motor trucks on the run from Philadelphia, Pa., to Atlantic City, N. J., and return a few weeks ago shows what a firm place these tires have made for themselves among the largest users of commercial vehicles in the country. Sixty-one per cent of all cars in Private Owners' Division Class A were equipped with Hartford solid motor tires, including the winner in the class. In Class B 50 per cent of all entries and in Class C, 60 per cent, including the winner, had Hartford solid tires. All reports on the Hartford equipment were the same—"no trouble at all." These tires are made by the Hartford Rubber Works Co., Hartford, Conn.

Cement Products—The Cement Products Exhibition Co., 115 Adams street, Chicago, announces that the Edison pound cement house will be exhibited to the public at the coming cement show in Madison Square Garden, New York City, December 14-20, 1910. The company has engaged the services of John Philip Sousa and his full band for the entire period of the show.

Want Trench Excavators—Bellamy & Lambie, P. O. Box 453, Johannesburg, Africa, want full particulars regarding trench excavators, stating weights, prices and time of delivery, also conditions of guarantee. Their American buying agents are Arkell & Douglas, 24 Exchange Place, New York.

Cast-Iron Pipe—It is estimated that pipe companies of the Birmingham district are shipping daily to the West and Southwest cast-iron pipe to the value of about $100,000.

Power Sprayers—The Beck Power Sprayer Company has been organized and will establish a manufacturing plant at Lansing, Mich.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles, where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS

History of the Road. By F. Huybrigts and C. Jansens. Illustrated, 2 pp., Surveying and Civil Engineer, Aug. 26. 20 cts.

Metaled and Paved Roads. Paper before International Road Congress. By Robert Drummond. Surveyor, Aug. 12. 20 cts.

General Report on Metaled and Paved Roads. By G. Maquet. Paper before International Road Congress. 4 1-2 pp., Surveyor, Aug. 5. 20 cts.

Atlantic Boulevard in Duval County, Florida. By G. L. Barnard. Illustrated, 2 pp., Good Roads, September. 10 cts.

Road Dimensions, Crowns, Gradients and Treatment of Hills. Paper before Ontario Good Roads Association. By R. H. Jupp. 2-3 p., Municipal World, August. 15 cts.

Clearance and Grade Requirements for Carrying Highways Over or Under Railway Lines. From paper before Canadian Society of Civil Engineers. By W. H. Breithaupt. 2-3 p., Engineering-Contracting, Aug. 17. 10 cts.

Foundation and Drainage of Country Roads. Paper before Brussels International Road Congress. By V. M. Pierce. 3 pp., Good Roads, September. 10 cts.

Foundation and Drainage of Roads. Paper before Brussels International Road Congress. By Italo Vandone. Illustrated, 1 p., Surveying and Civil Engineer. Aug. 26. 20 cts.

Road Materials and Rules for Testing Them. Paper before American Congress of Road Builders. By A. B. Fletcher. 2 1-2 pp., Contract Record, July 27. 15 cts.

Binding Materials in Metaled Roads, Use of. Paper before Brussels International Road Congress. By P. Le Gavrain. 6 pp., Good Roads, September. 10 cts.

Bituminous Roads Mixed and Poured. Paper before Brussels International Road Congress. By G. C. Warren. 3 pp., Municipal Engineering, September. 25 cts. 1 1-2 pp., Surveying and Civil Engineer, Aug. 12. 20 cts. 1 p., Engineering-Contracting, Aug. 10. 10 cts.

Physical and Chemical Characteristics of Bituminous Road Materials. Paper before International Road Congress. By Prevost Hubbard. 3 pp., Engineering-Contracting, Aug. 17. 10 cts. 4 pp., Good Roads, September. 10 cts.

Bituminous Gravel Surface in Road Work. By A. W. Dean, Chief Eng. Mass. Highway Commission. 1 p., Contract Record, Aug. 17. 10 cts.

Bituminous Cements and Concretes. Paper before International Road Congress. By J. A. W. Pine. 2 1-2 pp., Surveying and Civil Engineer, Aug. 19. 20 cts.

Petrolithic and Other Systems of Road and Street Improvements at El Paso, Texas. 2-3 p., Engineering News, Aug. 4. 15 cts.

Use of Tar in Road Construction. Paper before Brussels International Road Congress. By R. O. Wynne Roberts. 1 p., Surveyor, Aug. 19. 20 cts.

Use of Tar on Roads. Paper before Southern Gas Association. By A. D. Whittaker. Illustrated, 6 pp., Gas Light Journal, Aug. 29. 10 cts.

Oil Tarring of Roads. Paper before Irish Road Congress. By F. P. Nixon. 1-2 p., Surveyor, Aug. 5. 20 cts.

Three Years' Experience with Oiled Roads. From Paper before American Society of Municipal Improvements. By F. A. Reimer. Illustrated, 3 pp., Park and Cemetery, July. 10 cts.

Protective Coating for Macadam Roads. Paper before Brussels International Road Congress. By A. B. Fletcher. 1 1-2 pp., Surveying and Civil Engineer. Aug. 26. 20 cts.

Dust Abatement, Experiments in. Paper before International Road Congress. By Robert Drummond. 3-4 p., Surveying and Civil Engineer, Aug. 19. 20 cts.

Supplementary Reports on Dust Prevention and Road Preservation of the U. S. Office of Public Roads. 1 p., Engineering-Contracting, Aug. 3. 10 cts.

Experimental Work in 1909 of the U. S. Office of Public Roads in Dust Prevention and Road Preservation. 5 pp., Engineering-Contracting, Aug. 3. 10 cts.

Waste Sulphite Liquors for Dust Prevention. From Bulletin, Office of Public Roads, U. S. Department of Agriculture. 1 p., Engineering Record, Aug. 27. 10 cts.

Construction of Macadam Roads. Use of binding materials. Paper before International Road Congress. By A. H. Blanchard. 3 pp., Surveying and Civil Engineer, Aug. 19. 20 cts.

Wagon Trains Hauling Road Material. Illustrated, 1 p., Contractor, Sept. 1. 20 cts.

Difficulties of Road Building in the United States. Paper before Brussels International Road Congress. By C. W. Ross. 2 pp., Good Roads, September. 10 cts.

Building the Holyoke Road. Important Section of Massachusetts State Highway System Completed—Heavy Grading—Problems in Location—Contractor's Plant—Trolley Freight Cars for Hauling Stone—Details of Construction. Illustrated, 4 pp., Municipal Journal and Engineer, Aug. 31. 10 cts.

The Road Board's First Circular. Construction of By-pass Roads and Acquisition of Land in Urgent Cases. By Reginald Ryves. 3-4 p., Surveyor, Aug. 19. 20 cts.

Road Board's First Circular. Alteration of Gradients and the Strengthening of Bridges. By Reginald Ryves. 1 p., Surveyor, Aug. 12. 20 cts.

Road Board's First Circular. Remaking of Defective Main Roads. By Reginald Ryes. 1 1-2 pp., Surveyor, Aug. 5. 20 cts.

Financial and Economical Aspects of Modern Road Construction. By S. H. North. 2-3 p., Contract Journal, Aug. 24. 20 cts.

Maintenance and Repair of Metaled Roads. Paper before Brussels International Road Congress. By S. P. Hooker. 2 pp., Surveying and Civil Engineer. Aug. 26. 20 cts.

Methods of Carrying Out Road Maintenance and Repair Work with Underground Pipes. Paper before Brussels International Road Congress. By E. J. Silcock. 1 1-2 pp., Good Roads, September. 10 cts.

Construction and Maintenance of Parkway Roads. Paper before Brussels International Road Congress. By J. R. Rablin. 2 pp., Good Roads, September. 10 cts. 3-4 p., Surveyor, Aug. 19. 20 cts.

Construction and Maintenance of Park Drives. From paper before American Association of Park Superintendents. By H. S. Richards. 3 pp., Park and Cemetery, July. 10 cts.

Various Materials in Use for the Purpose of Construction and Maintenance. Paper before Brussels International Road Congress. By R. O. Wynne-Roberts. 1 p., Good Roads, September. 10 cts.

Certain Points of Law and Procedure Affecting Road Maintenance. Paper before Irish Road Congress. By E. A. Hackett. 1 1-2 pp., Surveyor, Aug. 19. 20 cts.

Highway Administration in England. By H. H. Coopnail. Paper before Brussels Congress on Administrative Science. 1 p., Municipal Journal, Aug. 19. 15 cts.

Road Rollers, Petrol Motor. Paper before Brussels International Road Congress. By H. L. Wakelam. 1 p., Good Roads, September. 10 cts. 3-4 p., Surveyor, Aug. 12. 20 cts. 1 p., Canadian Engineer, Aug. 25. 15 cts.

Automobiles, Measurements of Road Resistance of. By H. E. Wimperis. Illustrated, 1-2 p., Engineering News, Aug. 4. 15 cts.

Paving Construction in Syracuse. Illustrated, 4 pp., Good Roads, September. 10 cts.

Street Paving Work at Baltimore, Md. Cost data. 1 1-2 pp., Engineering-Contracting. Aug. 10. 10 cts.

Constructing New Street in Leeds. Illustrated, 2 pp., Municipal Journal, Aug. 19. 15 cts.

Brick Highways in Ohio. 1 p., Municipal Engineering, September. 25 cts.

Wood Blocks, Creosote for. Information collected by Cincinnati Bureau of Municipal Research—Quantity of carbon and specific gravity commercially practicable. 1 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Concrete Road Construction. Paper before National Association of Cement Users. By F. R Charles. 1 p., Concrete Engineering, August. 10 cts.

Concrete Pavement Construction at Boise, Idaho. 2-3 p., Engineering-Contracting, Aug. 24. 10 cts.

Asphalt Plant, San Francisco's Municipal. 1-3 pp., Municipal Journal and Engineer, Aug. 31. 10 cts.

Tramways, Influence of, on Street Paving. Paper before Association of Municipal and County Engineers. By R. O. Wynne-Roberts. Illustrated, 3 1-2 pp., Canadian Engineer, Aug. 11. 15 cts.

Nomenclature, Bituminous Paving. Communication from A. W. Dow. 1-4 p., Municipal Journal and Engineer, Aug. 31. 10 cts.

Road Terminology. Bituminous Binder. Communication from G. C. Warren. 1-3 p., Municipal Journal and Engineer, Aug. 24. 10 cts.

Sidewalks in Holyoke. 1-4 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Cement Sidewalks in Syracuse. 1-4 p., Municipal Journal and Engineer, Aug. 31. 10 cts.

Pavements and Subsurface Structures. Practice of fifty-seven cities in causing pipes, sewers and conduits to be laid or repaired previous to laying permanent pavements. Data obtained by American Society of Municipal Improvements. 3 1-2 pp., Municipal Journal and Engineer, Aug. 24. 10 cts.

Brussels International Road Congress. Review of the Proceedings. By P. C. Cowan. 4 pp., Surveyor, Aug. 26. 20 cts.

International Good Roads Congress. By C. A. Kenyon. 2 pp., Municipal Engineering, September. 25 cts.

Second International Road Congress. By E. L. Corthell. 2 1-2 pp., Engineering News, Sept. 1. 15 cts.

Conclusions of Brussels International Road Congress. Nine general questions on proper character of roadbeds answered by second convention. Road substructures. Choice of surfacing materials. Distribution systems. Designs of vehicles. 2 pp., Municipal Journal and Engineer, Aug. 31. 10 cts. 1 1-2 pp., Engineering-Contracting, Aug. 31. 10 cts. Illustrated, 9 pp., Good Roads, September. 10 cts. 5 pp., Surveying and Civil Engineer. Aug. 12. 20 cts. 2 1-2 pp., Surveyor, Aug. 12. 20 cts.

SEWERAGE AND SANITATION

Sewerage System, Engineering Features of the Louisville. Illustrated, 2 pp., Surveyor, Aug. 5; 2 pp., Aug. 12. 20 cts.

Bronx Valley Sewer Tunnel. 1-2 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Fourteenth Street Sewer Tunnel, Washington, D. C. By A. E. Phillips. Illustrated, 1 p., Engineering Record, Aug. 6. 10 cts.

London and Glasgow Main Drainage. 3 pp., Municipal Engineering, September. 25 cts.

Structural Details of the River Des Pere Sewer at St. Louis, Mo. Illustrated, 1 1-2 pp., Engineering-Contracting, Aug. 3. 10 cts.

Leaping Weirs, Syracuse Intercepting Sewers. Illustrated, 1-2 p., Engineering-Contracting, Aug. 24. 10 cts.

Mill Creek Intercepting Sewer at Erie, Pa. Illustrated, 1 1-2 pp., Municipal Engineering, September. 25 cts.

Concrete Piles in Sewer Foundations. Illustrated, 2 pp., Contractor, Sept. 1. 20 cts.

Cost of Small Sewer Work by Day Labor in Baltimore. 2 pp., Engineering-Contracting, Aug. 3. 10 cts.

Sewage Flow, Gauging. On New Jersey "Joint" Outlet Sewer. Dibble and Richard Gauges used. Description of each and of gauge chambers. Illustrated, 3 pp., Municipal Journal and Engineer, Aug. 24. 10 cts.

Condensing, Using a Sewer for. Paper before Municipal Electrical Association. By F. A. Newington. 1 p., Power, Aug. 2. 5 cts.

Sewage Disposal Works of Mt. Vernon, N. Y. Illustrated, 3 pp., Engineering Record, Aug. 20. 10 cts.

Sewage Disposal Works at Bushey. Paper before Institution of Municipal En-

gineers. By E. E. Ryder. Illustrated, 4 pp., Surveyor, Aug. 5. 20 cts. Illustrated, 3 1-2 pp., Canadian Engineer, Aug. 25. 15 cts.

Province of Alberta and Sewage Disposal. 2 pp., Canadian Engineer, Sept. 1. 15 cts.

Sewage Disposal in the Vicinity of London, England. By H. N. Ogden. 2 pp., Engineering Record, Aug. 6. 10 cts.

Sewage Disposal Works. North Attleboro, Mass. Illustrated, 2 pp., Engineering Record. Aug. 27. 10 cts.

Operation of the Reading Sewage Purification Works. By G. S. Chase. 2 1-3 pp., Engineering Record, Aug. 13. 10 cts.

Sewage Disposal of Seaside and Tidal Towns. Paper before Association of Municipal and County Engineers. By A. J. Price. Illustrated, 3 1-3 pp., Contract Journal, July 27. 20 cts. Illustrated, 6 pp., Surveyor, Aug. 5. 20 cts.

Dilution at Rochester, N. Y., Series of Notable Reports on Sewage Disposal by. Reports by Theodore Horton, Allen Hazen, F. H. Snow, and Dr. E. H. Porter. 4 pp., Engineering News, Aug. 11. 15 cts.

Rochester Sewage Disposal Case. Dilution Strongly Endorsed. 2-3 p., Engineering News, Aug. 11. 15 cts.

Sedimentation Plants, Operating Control of, from the German View Point. By Karl Imhoff. Illustrated, 1 2-3 pp., Engineering Record, Sept. 3. 10 cts.

Contact Beds, Preparing and Placing Ashes or Cinders for Filtering Material in. By E. G. Bradbury. Illustrated, 1 1-2 pp., Engineering-Contracting, Aug. 31. 10 cts.

Biological Purification of Sewage, Some Considerations regarding the. By Henri Nichel. Communication from Dr. A. Lubbert, concerning the Hampton Doctrine. 6 pp., Technique Sanitaire, August. 30 cts.

Description of Aerobic. Biological Purification of Sewage by Means of the Live Earth Bed System. By R. B. Owens. Illustrated, 2 1-2 pp., Canadian Engineer, Sept. 1. 15 cts.

Septic Patents, Cameron. 1-4 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Disinfecting Station at Westminster, England, Municipal. Illustrated. 2-3 p., Engineering News, Aug. 25. 15 cts.

Department of Public Health, Papers, Opinions, Letters, etc. Relative to the National Public Health in Consideration of Senate Bill in Establishing a. Senate Document No. 637. Sixty-first Congress, Second Session.

School of Sanitary Science and Public Health, Temporary Defeat of the Project for a New York State. 1 p., Engineering News, Aug. 25. 15 cts.

County Laboratories, Function of, in the Preservation of the Public Health. By C. W. Hennington. 2 pp., Bulletin New York State Department of Health, July. 10 cts.

Typhoid Fever, Prevention of. Illustrated, 10 p., Bulletin North Carolina Board of Health, July.

Outbreak of Typhoid Fever due to Milk. Paper before American Water Works Association. By Prof. P. G. Smith. 1 p., Water and Gas Review, August. 20 cts.

Abattoir and Reduction Plant at Paris, Texas, Municipal. By E. H. McCuiston. 2 pp., Municipal Engineering, August. 25 cts.

Mosquito Extermination Campaign, Modern. By J. B. Smith. Illustrated, 1 1-2 pp., Engineering News. Sept. 1. 15 cts.

Rat Suppression for Plague Prevention in San Francisco, Cal. Report of the U. S. Public Health & Marine Hospital Service. By G. M. Converse. 1-2 p., Engineering News, Aug. 25. 15 cts. 3 pp., Public Health Reports, July 22. 10 cts.

WATER SUPPLY

Water Supply. Paper before Royal Institute of Public Health. By Martin Beacon. 2 pp., Surveyor, Aug. 12. 20 cts.

New Gravity Water Supply for Pulaski, Va. By G. H. Derrick. Illustrated, 1 1-2 pp., Municipal Engineering, September. 25 cts.

Cowpe Valley Water Supply Scheme. Illustrated. 3 1-2 pp., Water, Aug. 15. 20 cts.

Water Works of Monterey, Mexico. Illustrated, 3 pp., Engineering Record, Aug. 6. 10 cts.

Water Works of Springfield, O. 2 1-2 pp., Municipal Engineering, August. 25 cts.

Plymouth Water Undertaking. Paper before Institution of Municipal and County Engineers. By Frank Howarth. Illustrated, 6 pp., Surveyor, July 29. 20 cts.

Municipal Water Works at Mattoon, Ill. 1 p., Municipal Engineering, September. 25 cts.

Baignton Water Works. Paper before Institution of Municipal Engineers. By J. C. Hawkins. 1 1-2 pp., Aug. 15. 20 cts.

East Orange Water Department. 3-4 p., Fire and Water, Aug. 24. 10 cts.

Bacup's New Water Works. Illustrated, 2 1-2 pp., Surveyor, July 29. 20 cts. Illustrated, 1 p., Municipal Journal, July 29. 15 cts.

Barrow-In-Furness Water. Illustrated, 2 pp., Municipal Journal, Aug. 5. 15 cts.

Tunnel, Construction Methods and Organization in Constructing the Buffalo Water Works. Illustrated, 7 pp., Engineering-Contracting, Aug. 17; 4 1-2 pp., Aug. 24. 10 cts.

Water Pipe Tunnels in Milwaukee. Illustrated, 1 p., Engineering Record, Sept. 3. 10 cts.

Dams in New South Wales, Curved. From paper before Institution of Civil Engineers. By L. A. B. Wade. 1 p., Engineering Record, Aug. 27. 10 cts.

Fill Dams with Concrete Core Walls. By F. B. Gilbreth. 2-3 p., Engineering-Contracting, Aug. 17. 10 cts.

Reservoir, New Chingford, London. 1 p., Municipal Journal, July 29. 15 cts.

Pipes, Electrolysis of. 2-3 p., Engineering Record, Aug. 27. 10 cts.

Determination of the Resultant Angle in Laying out Combined Bends for Pipe Lines. By C. A. Jackson. Illustrated. 1 2-3 pp., Engineering News, Aug. 11. 15 cts.

Pump Characteristics, Centrifugal. Illustrated, 2 pp., Power, Aug. 9. 5 cts.

Wilmette Pumping Station, Chicago. Illustrated, 1 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Pumping Engine for Taking Steam at Atmospheric Pressure. Illustrated, 1-2 p., Engineering News, Aug. 4. 15 cts.

Pumping Cistern Sunk into place in the Ground. A Reinforced Concrete. By W. D. Bosbury. Illustrated, 1 1-2 pp., Engineering News, Aug. 25. 15 cts.

Underground Waters, Availability of, for Manufacturing Purposes. 1 p., Engineering Contracting, Aug. 3. 10 cts.

Cave-in Caused by an Underground Stream at Staunton, Va. By F. B. Van Horn. Illustrated, 1 1-2 pp., Engineering News, Sept. 1. 15 cts.

Aqueduct, Electric Power in the Construction of the Los Angeles. Paper before Los Angeles Section American Institute of Electrical Engineers. By E. F. Scattergood. Illustrated, 3 1-2 pp., Canadian Engineer, Sept. 1. 15 cts. Illustrated, 14 pp., Proceedings of the American Institute of Electrical Engineers, August. $1.00.

Hauling with Traction Engines on Los Angeles Aqueduct. Illustrated, 1 1-2 pp., Engineering Record, Sept. 3. 10 cts.

Stream Flow at Single Cross Section. By F. Van Winkle. Illustrated, 5 pp., Power. Aug. 30. 5 cts.

Meters, Water Famines Show Need of. 2 pp., Public Service, September. 20 cts.

Water Purification Plant, Putnam, Conn. Illustrated, 1 2-3 pp., Engineering Record, Aug. 13. 10 cts.

Filters, Washington's Water. 1-4 p., Municipal Journal and Engineer, Aug. 24. 10 cts.

Results of Double Filtration Experiments at Albany. Illustrated, 3 pp., Engineering Record, Sept. 3. 10 cts.

Handling and Washing of Sand on Filter Beds. By G. F. Vollmer. 1 p., Surveying and Civil Engineer, July 29. 20 cts.

Ozone. Water Purification by. 2 pp., Municipal Engineering, August. 25 cts.

Sterilization of Water by Chlorine and Ozone. Paper before Royal Sanitary Institute. By G. S. Woodhead. 2 pp., Water and Gas Review, August. 20 cts. 2 1-2 pp., Canadian Engineer, Aug. 4. 15 cts.

Softening Plant, Wellingborough Water Works and. Paper before Association of Water Engineers. By E. Y. Harrison. Illustrated, 3 pp., Contract Journal, Aug. 17. 10 cts.

Color of Water, Notes on the. Paper before Association of Water Engineers. By Ad. Kemna. 1 p., Contract Journal. Aug. 24. 20 cts. 1-2 p., Canadian Engineer, Aug. 11. 15 cts.

Experience in Treating High Colored Water from the Penobscot River at Bangor, Me. 1 1-2 pp., Engineering-Contracting, Aug. 31. 10 cts.

Water Rates in St. Louis. Committee Recommends Lower Rates—Minimum Rate of Three Cents per Thousand Gallons for Large Users—Rates in Twenty-three Leading Cities. By C. C. Casey. 1 1-3 pp., Municipal Journal and Engineer, Aug. 10. 10 cts.

Water Rates. 1-2 p., Municipal Journal and Engineer, Aug. 31. 10 cts.

Valuation of the Fond du Lac Water Works. 2 pp., Engineering Record, Sept. 3. 10 cts.

Value of Water Power Overrated. Illustrated, 2 1-2 pp., Public Service, September. 20 cts.

Appleton Water Works Decision. 2 pp., Engineering Record, Aug. 6. 10 cts.

Conservation of Water Powers. Presidential address of American Institute of Electrical Engineers. By L. B. Stillwell. 3 pp., Engineering-Contracting, Aug. 17. 10 cts. Proceedings American Institute of Electrical Engineers. 6 pp., August. $1.00.

Protection. Water Supplies. Committee report on a Parliamentary Bill. 2 pp., Municipal Journal, Aug. 26. 15 cts.

Protection of Water Supplies. 2 pp., Water, Aug. 15. 20 cts.

STREET LIGHTING AND POWER PLANTS

Street Illumination. Paper before Engineers' Society of Milwaukee. By J. R. Cravath. 12 pp., Journal Association of Engineering Societies, July. 30 cts.

Flame Lamp as a Street Illuminant. By A. J. Mitchell. Illustrated, 3 pp. Illuminating Engineer, August. 20 cts.

Illumination Requirements in Street Lighting. By A. J. Sweet. Illustrated. 3 pp., Illuminating Engineer, September. 20 cts.

White Way of West New York. By James Kennedy. Illustrated, 1 p., Progressive Age, Sept. 1. 20 cts.

Contracts for Street Lighting. 1-4 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Public Lighting Contracts. For energy and maintenance, energy only and illumination, detail comparison of the three styles of contract. Paper before Institution of Gas Engineers. By Jacques Abady. 1 1-2 pp., Municipal Journal and Engineer, Aug. 10. 10 cts.

Electric Light Plant at Richmond, Ind., Municipal. Illustrated, 3 pp., Municipal Engineering, September. 25 cts.

Underground Duct Construction. From paper before Western Society of Engineers. By E. N. Lake. 1 1-3 pp., Engineering Record, Aug. 27. 10 cts.

Gas in Small Cities. Paper before Colorado Section National Commercial Gas Association. 2-3 pp., Progressive Age, Aug. 1. 15 cts.

Regulations of Gas Companies. Validity and Effect of. Duties and liabilities of gas companies to public with reference to supply of gas. By J. D. Brady. 1 1-2 pp., American Gas Light Journal, Aug. 1. 2 1-2 pp., Aug. 8. 20 cts.

Hydro-electric Practice, General Review of. By Frank Koester. Illustrated, 20 pp., Engineering Magazine, August; Illustrated, 15 pp., September. 25 cts.

FIRE AND POLICE

Fire Department, Springfield. Automobile apparatus used for four years. Maintenance cost much less than horse-drawn. Equipment of the several stations. Living quarters homelike. New stations and equipment plan. Illustrated, 3 pp., Municipal Journal and Engineer, Aug. 17. 10 cts.

Syracuse Fire Department. Present condition and equipment of force. Illustrated, 2 pp., Municipal Journal and Engineer, Aug. 17. 10 cts.

Statistics in 158 Cities, Some Fire Department. Value of department property. Expenses. Men in service. Salaries. Number of Alarms. Equipment. 1 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Fire Hazard of Elmira. From Report of National Board of Fire Underwriters. 2-3 p., Fire and Water, Aug. 3. 10 cts.

Fires in N. Y. City. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Fire Marshal Needed for Norwich. 1 1-2 pp., Fireman's Herald, Aug. 13. 5 cts.

Work of a Fire Marshal. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Fire Works Ordinances. Proposed by National Board of Fire Underwriters. 2 pp., Insurance Engineering, September. 25 cts.

Proposed Fire Works Ordinance. 1 p., Fireman's Herald, Aug. 20. 5 cts.

Fire Fighting Systems, High Pressure. Success of those in use and their favorable effect on cost of fire insurance. Illustrated, 17 pp., Insurance Engineering, September. 25 cts.

The Man and the Machine. 1-3 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Card Catalogues for Fire Fighters. Illustrated, 2-3 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Training School for Paterson Firemen. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Horses, Cost of Maintaining Fire. 1-3 p., Municipal Jaurnal and Engineer, Aug. 17. 10 cts.

Auto Apparatus at Joplin, Mo. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Speed in Automobile Apparatus. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Automobile Fire Apparatus. Opinions of two Chiefs concerning efficiency and economy. Better than horses for hills and snow. Cost of operation and other data. 1 p., Municipal Journal and Engineer, Aug. 24. 10 cts.

Autos at Newburgh, New York. Illustrated, 1-2 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Auto Engine at Springfield, Ohio. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Auto Fire Engine at Youngstown, Ohio. Cost of Maintenance. 1-3 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Economy of Auto Apparatus. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Automobile Economy and Efficiency. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Auto Wagon at Hamilton, Md. 1-4 p., Municipal Journal and Engineer, Aug. 17 10 cts.

Combination Wagon at Neodesha, Kansas. 1-4 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Auto vs. Horse-Drawn Apparatus. Conclusion by New York officials from experience in that city. Comparisons of costs. Specifications for new auto apparatus soon to be purchased. Illustrated, 2 1-2 pp., Municipal Journal and Engineer, Aug. 17. 10 cts.

Fire Boat at Seattle, New. Illustrated, 1 1-2 pp., Fire and Water, Aug. 17. 10 cts.

Salvage Corps and Fire Patrols. Maintained by insurance companies to prevent damage to property. Description of the Newark, N. J., corps and its work. Corps organization in other cities. Illustrated, 2 3-4 pp., Municipal Journal and Engineer, Aug. 17. 10 cts.

Track Crossing for Fire Hose. Illustrated, 1-3 p., Municipal Journal and Engineer, Aug. 17. 10 cts.

Association, Advantages of a State Firemen's. Paper before Minnesota State Fireman's Association. By Captain J. P. Barrett. 1 p., Fireman's Herald, July 23. 5 cts.

Prison Life as I Have Found It. A candid and unsensational article by a long-term prisoner. By "John Carter." 6 1-2 pp., The Century, September. 25 cts.

GOVERNMENT AND FINANCE

City Government, The Problem of Efficient. Frank discussion of the principles and popular delusions. By Wm. J. Gaynor, Mayor of New York. 3 pp., The Century, September. 35 cts.

Municipal Non-partisanship in Operation. What has been saved and gained in New York in the first six months of Mayor Gaynor's administration. A favorable review. By James Creelman. 7 pp., The Century, September. 35 cts.

Toronto's Municipal Government. Illustrated, 7 pp., Canadian Municipal Journal, August. 10 cts.

Commission, Government by. By D. E. Mowry. 2 pp., Municipal Journal, August 5. 15 cts.

Civil Service Efficiency System in Chicago. 2 1-3 pp., Enginering Record, Aug. 20. 10 cts.

Voting in Johannesburg and Pretoria, Preferential. By J. H. Humphries. 5 pp., Pacific Municipalities, July. 20 cts.

City Bureau of Public Efficiency for Chicago. 1-2 p., Engineering-Contracting, Aug. 10. 10 cts.

Public Service Commission of Maryland, New. 2-3 p., Engineering News, Aug. 11. 15 cts.

Commission Control of Public Service Corporations. By F. P. Royce. 2 pp., American Gas Light Journal, Aug. 1. 10 cts. 3 1-2 pp., Public Service, August. 25 cts.

A Tribunal for All the People. How the Public Service Commissions of New York have put an effective curb on corporate abuses. By Isaac F. Marcosson. Illustrated, 13 pp., The Munsey, September. 10 cts.

Regulation of Utility Corporations. Criticism of Commission Control in Limiting Capitalization and Stock Issue. By R. C. Dawes. 4 pp., Public Service, September. 20 cts.

How Wisconsin Regulates Her Public Utilities. By J. R. Commons. 3 pp., Review of Reviews, August. 25 cts.

How New York Deals with Her Public Service Companies. By L. B. Stowe. 4 pp., Review of Reviews, August. 25 cts.

Utility Corporations, Efforts of, to Promote Efficiency. 2 pp., Public Service, August. 25 cts.

How Can a Public Utility Corporation Best Secure and Retain the Favor of the Public. By E. H. Taylor. 1 p., American Gas Light Journal, Aug. 22. 10 cts.

Benefits from Utility Consolidation. 2 pp., Public Service, August. 25 cts.

Accounting and Administration, Side Lights of Municipal. By W. Dolge. 3 pp., Pacific Municipalities, July. 20 cts.

Bonds, The Issue of Municipal. Paper before League of Third Class Cities in Pennsylvania. By Park Terrell. 2 1-2 pp., American Banker, Aug. 27. 15 cts.

Land Taxes Allocation. Paper before Association of Midland Local Authorities. By J. R. Cooper. 2 1-2 pp., Municipal Journal, Aug. 5. 15 cts.

STREET CLEANING AND REFUSE DISPOSAL

Street Cleaning Methods. Paper before New England Conference on Street Cleaning. By J. T. Fetherston. 1 p., Engineering-Contracting, Aug. 10. 10 cts.

Training and Duties of a Street Superintendent. Paper before New England Conference on Street Cleaning. By J. T. Fetherston. 1 1-2 pp., Engineering-Contracting, Aug. 3. 10 cts.

Street Cleaning in San Francisco. 1-4 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Average Practice in Street Cleaning and Sprinkling in the Larger Towns of Great Britain. From paper before International Road Congress. By T. H. Yabbicom. 2 pp., Engineering-Contracting, Aug. 24. 10 cts. 1 p., Engineering News, Sept. 1. 15 cts. 3 1-2 pp., Surveyor, Aug. 5. 20 cts.

Essentials of A Clean City. Paper before Iowa Health Officers' Association. By F. G. Pierce. 8 pp., Midland Municipalities, August. 10 cts.

Cleansing and Watering. Report to Brussels International Road Congress. By G. Loppens. 2 1-2 pp., Surveying and Civil Engineer. Aug. 26. 20 cts.

Snow Removal in New York City. Report of committee to Board of Estimate. 1 p., Engineering-Contracting, Aug. 31. 10 cts.

Town Scavenging and Refuse Disposal. By H. S. Watson. 2 pp., Municipal Engineering. August. 25 cts.

Disposal of City Refuse. Illustrated, 6 pp., Canadian Engineer, Aug. 25. 15 cts.

Disposal Method for Manufactured Wastes. 2 pp., Engineering Record, Aug. 27. 10 cts.

Disposal of the City's Waste. By W. F. Morse. 4 pp., American City, August. 10 cts.

Refuse Destructor, Operation of the Seattle. 1 p., Engineering Record, Aug. 13. 10 cts.

English Practice in the Designing and Working of a Modern Refuse Destructor. Paper before Association of Municipal and County Engineers. By W. F. Loveday. 3 pp., Chemical Engineer, July. 25 cts.

Garbage Incineration. San Francisco's specifications for determining cost. 1 1-2 pp., Engineering-Contracting, Aug. 24. 10 cts.

Ashes and Garbage in Somerville. 1-4 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

TRAFFIC AND TRANSPORTATION

Municipal Street Cars in Belfast, Leeds, Birmingham, and Amsterdam. 3 1-2 pp., Daily Consular Reports. Aug. 24.

Street Railway Track, Standardizing the Design of. 1 2-3 pp., Engineering News, Aug. 4. 15 cts.

Standardizing of Street Railway Track Constructed in Paved Streets. Paper before Street Railway Association of the State of New York. By B. E. Tilton, 1 p. Engineering News, Aug. 4. 15 cts.

Light Railways and Tramways on Roads. Paper before Brussels International Road Congress. By R. O. Wynne-Roberts. 1 1-4 pp., Surveying and Civil Engineer, Aug. 26. 20 cts.

The Laying of Light Railways and Tramways on Roads. Report to International Road Congress. By A. Bonnevie. Illustrated, 5 1-2 pp., Surveying and Civil Engineer, Aug. 19. 20 cts.

Subway Situation, New York. By W. J. Gaynor. Illustrated, 3 1-2 pp., Outlook, July 30. 5 cts.

Design of the Fourth Avenue Subway, Brooklyn. Illustrated, 1 p., Engineering Record, Aug. 20. 10 cts.

Valuation of the Detroit Street Railways, 2 pp., Engineering News, Aug. 25. 15 cts.

Transit Problem, Pittsburg's. Reports by B. J. Arnold. 1 1-3 pp., Engineering News, Aug. 4. 15 cts.

The Passenger, The City and the Company. Report by B. J. Arnold to Mayor W. A. McGee of Pittsburg. 3 pp., Public Service, September. 20 cts.

Fare, How Street Railway Companies are made to Suffer from Inflexible Rate of. Illustrated, 2 pp., Public Service, August. 25 cts.

Folly of the No-Seat-No-Fare Law. Illustrated, 2 1-2 pp., Public Service, September. 20 cts.

No-Seat-No-Fare. 1-2 p., Municipal Journal and Engineer, Aug. 24. 10 cts.

STRUCTURAL MATERIALS

Cement, German Standard Specifications for Delivery and Testing of Portland and Non-Portland. Illustrated, 1 1-4 pp., Engineering News, Aug. 25. 15 cts.

Manufacture and Use of Slag Cement and other substitutes for Portland Cement. By W. D'Rohan. 1 1-3 p., Engineering-Contracting, Aug. 24. 10 cts.

Alkali Water, Effect of, on Cement Mortars. By A. J. Fisk. 3-4 p., Engineering News, Aug. 18. 15 cts.

Sea Water, Behavior of Hydraulic Compounds in. By H. Burchartz. 2 1-3 pp., Engineering Record, Aug. 27. 10 cts.

Sodium Silicate Mixed with or Applied to Concrete, The Effect of. Paper before American Society for Testing Materials. By Albert Moyer. 2 pp., Concrete, August. 15 cts.

Stone, Economy of Good. Paper before Irish Road Congress. By Wm. Collin. 3-4 p., Surveyor, Aug. 12. 20 cts.

Bitumen, Determination of Soluble, Paper before American Society for Testing Materials. By Prevost Hubbard and C. S. Reeve. 5 1-2 pp., Chemical Engineer, July. 25 cts. 2 1-2 pp., Surveyor, Aug. 19. 20 cts.

Petroleum Products, Necessary Reform in Specifications for. From paper before American Society for Testing Materials. By Dr. Albert Sommer. 3 pp., Engineering Record, Aug. 6. 10 cts.

Cresote, New Method for Testing Coal Tar. Illustrated, 2-3 p., American Gas Light Journal, Aug. 1. 10 cts.

MISCELLANEOUS

Town Planning and Housing. By Henry Bivian. 8 pp., Journal Royal Institute of Public Health. August. 50 cts.

Ninth International Housing Congress in Vienna. By G. B. Ford. 2 pp., American City, August. 10 cts.

Progress in City Planning. By C. R. Woodruff. 1 p., American City, August. 10 cts.

Basic Principles of City Planning. Paper before National Conference on City Planning. By F. L. Olmsted. 5 pp., American City, August. 10 cts.

Speculative Condemnation in Paris. 2 pp., Real Estate News. August. 25 cts.

Garden City, Bourges: The First Model in France. By Georges Benoit-Levy. Illustrated, 4 pp., American City, August. 10 cts.

Idle City Land, Cultivation of. By J. H. Dix. Illustrated, 9 pp., Twentieth Century Magazine, September. 25 cts.

Park Reservations. 1-3 p., Municipal Journal and Engineer, Aug. 24. 10 cts.

Recreation, Developments and Opportunities in the Field of Public. By H. S. Broucher. 14 pp., Bulletin Playground Association, No. 83.

Storytelling, Report of the Committee on. Paper before Playground Association. 24 pp., The Playground, August. 25 cts.

Bath Pavilion, Matlock, England. Illustrated, 1 p., Municipal Journal, Aug. 26. 15 cts.

Smoke Abatement Legislation for Boston and Vicinity. 1-2 p., Engineering News, Aug. 18. 15 cts.

New Smoke Law, Boston. By H. S. Knowlton. Illustrated, 1 1-2 pp., Engineering Record, Aug. 6. 10 cts.

Civil Development, Business Man's Relation to. By G. W. Webb, Secy. Providence Board of Trade. 2 1-2 pp., American City, August. 10 cts.

Public Work in San Francisco. 1-4 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Providence. General description. Illustrated, 14 pp., Board of Trade Journal, Providence, August.

Paignton Municipal Works. Paper before Institution of Municipal Engineers. By C. O. Baines. Illustrated, 3 1-2 pp., Surveying and Civil Engineer, July 29. 20 cts. Illustrated, 3 1-2 pp., Surveyor, Aug. 5. 20 cts.

Municipal Improvements in Richmond, Ind. 1 p., Municipal Engineering, September. 25 cts.

Savannah and its Renaissance. By Neyle Colquitt. Illustrated, 7 pp., American City, August. 10 cts.

Water Front Improvements at Herne Bay. Illustrated, 2 pp., Municipal Journal, Aug. 12. 10 cts.

Harbors of the World. Report to Chicago Harbor Commission. By J. P. Goode. 2 pp., Real Estate News, September. 25 cts.

River, Dike at Herring, Wellfleet, Mass. Mosquito Extermination Work. By F. W. Hodgdon. Illustrated, 1 p., Engineering News, Aug. 11. 15 cts.

Report of the Paris Flood Prevention Commission. 2 1-2 pp., Engineering Record, Aug. 6. 10 cts.

Creek Improvement at Syracuse. Preliminary investigation, determining character of soil. Current measurements, depth of ground water, concrete blocks for lining channel, novel features in plans and specifications. Illustrated, 5 pp., Municipal Journal and Engineer. Aug. 10. 10 cts.

Retaining Walls, Formulas for the Design of **Gravity.** From Professional Memoirs Corps of Engineers, U. S. A. By Lieut. W. H. Rose. 2 pp., Engineering-Contracting, Aug. 10. 10 cts.

Bridges, The Present Status of Reinforced Concrete. 1 p., Engineering Record, Aug. 13. 10 cts.

Plate Girder Arch Bridge Carrying a Concrete Roadway. Illustrated, 1 1-2 pp., Engineering Record, Aug. 20. 10 cts.

Three-Hinged Reinforced Concrete Arch Bridge, Los Angeles. Illustrated, 2 1-3 pp., Engineering Record, Aug. 13. 10 cts.

State Supervision of Highway Bridges. 2-3 p., Engineering Record, Aug. 6. 10 cts.

The Use of Cement in Repairing an Arch after the Settling of one Abutment. Illustrated, 9 pp., Cement, July. 25 cts.

Grafton Bridge, Auckland, New Zealand. Longest concrete arch bridge in the world. Illustrated, 2-3 p., Engineering-Contracting, Aug. 24. 10 cts.

Main Street Bridge over Buffalo Belt Line. Illustrated, 1 2-3 pp., Engineering Record, Aug. 27. 10 cts.

Dump Wagons, Their Uses and Abuses. By D. J. Hauer. 2 1-2 pp., Contractor, Sept. 1. 20 cts.

Belt Conveyors for Handling Crushed Stone. Methods Employed by the San Francisco Quarries Company. Illustrated, 1 p., Engineering Record, Aug. 6. 10 cts.

Sand and Gravel Plant, Columbus, O. Illustrated, 2 1-2 pp., Municipal Engineering, September. 25 cts.

Wages, Day Labor on Road Work in California. 1-3 p., Engineering Record, Aug. 20. 10 cts.

Cost, Unconsidered Elements in Figuring. 2 pp., Contract Record, Aug. 24. 10 cts.

Increased Cost of Construction due to increased Wages and Decreased Efficiency. By F. H. Newell, Director, U. S. Reclamation Service. 2 pp., Engineering-Contracting, Aug. 10. 10 cts.

Economic Value of Motion Study in Standardizing Trades. By F. B. Gilbrath. 5 pp., Industrial Engineering, August. 20 cts.

Handling Supplies, Economy of the Piece Work System in. Paper before Railway Storekeeper's Association. By D. C. Curtis. 1 p., Contract Record, July 13. 15 cts.

Handling Wet Clay on Chicago Canal. Methods pursued to overcome difficulties on North Shore Channel of a Sanitary District of Chicago. Illustrated, 3 pp., Contractor, Aug. 1. 20 cts.

Labor Laws, Drastic, in Effect September 1, in New York State. By E. S. Lott. 2 1-3 pp., Water and Gas Review, August. 20 cts.

Amendment to Employers' Liability Law in New York. 1 p., Engineering-Contracting, Aug. 31. 10 cts.

New Employers' Liability Law, New York. 1-3 p., Engineering Record, Aug. 27. 10 cts.

Standardizing Contracts for the City of New York, Necessity for. By R. W. Creuzbaur. 1 p., Engineering-Contracting, Aug. 3. 10 cts.

Standardization of Contract Forms. Paper before National Association of Controlling and Accounting Officers. By R. W. Creuzbaur. 1 p., Contractor, Sept. 1. 20 cts.

Engineer as a Professional Man. Address before Clarkson School of Technology. By N. P. Lewis. 8 pp., Clarkson Bulletin, July. 10 cts.

Library of the New York Public Service Commission of the First District. By R. H. Whitten. 1 1-2 pp., Engineering-Contracting. Aug. 31. 10 cts.

Classification and Filing of Technical Memorandums. By H. C. Adams. 2 1-2 pp., Municipal Engineering, September. 25 cts. 4 pp., Surveying and Civil Engineer, Aug. 5. 20 cts.

Method of Indexing Engineering Information. By F. Lavis. 1 p., Engineering Record, Aug. 13. 10 cts.

Forethought in Municipal Work. 1-3 p., Municipal Journal and Engineer, Aug. 10. 10 cts.

Scales and Measures, Exposures of Trickery in. By F. A. Collins. Illustrated, 6 pp., Review of Reviews, September. 25 cts.

NEW INCORPORATIONS

Collegeville Electric Light, Heat & Power Co., Collegeville, Pa.; capital, $5,000.

Elmer P. Morris Co. of Pennsylvania, Elizabethtown, Pa., capital, $100,000.

Kelly Township Electric Co., Lewisburg, Pa.; capital, $5,000.

Cuban-American Asphaltum & Development Co.; Capital Trust Co., Wilmington, Del.; capital, $350,000.

Tower & Mixer Manufacturing Co., St. Louis, Mo.; capital, $2,000. Incorporators: Breckenridge Morehead, O. H. Shreyer and others.

Clarke & Ansbro Contracting Co., St. Louis, Mo.; capital, $2,000. Incorporators: Patrick H. Clarke, John F. Ansbro and Robert E. Clarke.

Good Roads Cement-Gravel, Quartz Sand and Gravel, Brick, Tile and Clay Pipe Co., Augusta, Ga.; capital, $60,000. Incorporators: Horace M. Cassell, of Aiken County, S. C.; Charles F. McKenzie, A. H. McDaniel, both of Augusta, and others.

Southern Engineering Co., 411-412 Clark Bldg., Jacksonville, Fla. Incorporators; Alf Oldfield and Horace P. Ramey.

Sequoyah Engineering Co., Fort Smith, Ark.; capital, $10,000. Incorporators: E. W. Garrett, Verne Plum, Harry G. Jacobs, Fort Smith, and George A. Smith, Dallas, Tex.

City Service Co., New York, N. Y.; capital, $50,000,000; a merger of the Denver Gas & Electric Co., the Empire District Gas Co., and the Spokane Gas & Fuel Co. Incorporators: Anselm P. Anderson, New York; James M. Satterfield and Arley B. Magee, Dover, Del.

Fremont Gas, Electric Light & Power Co., Dover, Del.; capital, $500,000. Incorporators: James M. Satterfield, Arthur J. Kingsbury, M. M. Hirona, all of Dover, Del.

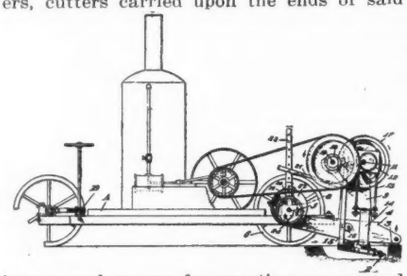
Kermont Incandescent Lamp Co., Wilmington, Del., Delaware Trust Co.; capital, $100,000. Incorporators: F. M. Shive, S. E. Roberson, Harry W. Davis, all of Wilmington, Del.

Olympia Gas Co., Corporation Trust Co. of America, Chicago, Ill.; capital, $100,000. Incorporators: Mathew S. Morrison, F. C. Gordon, Louis Dulsky, all of Chicago, Ill.

PATENT CLAIMS

968,422.—STREET SURFACE CUTTING DEVICE. Alfred Rosenholz, San Francisco, Cal. Serial No. 505,072.

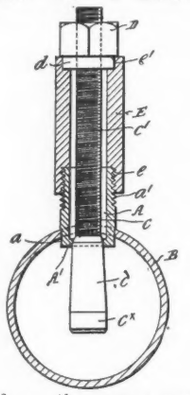
A street surface cutting apparatus having in combination suitably fulcrumed levers, cutters carried upon the ends of said



levers, and means for exerting an upward pull upon the cutters to cause them to be projected beneath the surface.

968,258. SECURING THE ENDS OF SERVICE PIPES TO GAS OR OTHER MAINS. Bernard Robert Parkinson, Leighton Buzzard, England, assignor of one-half to Henry Woodall, Westminster, England. Serial No. 457,404.

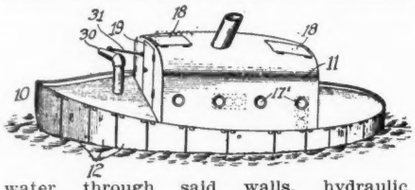
A nipple for securing a service pipe to a main formed on the lower part of its exterior surface with a number of fine



threads and on the upper portion of its exterior surface with a number of coarser screw threads, said nipple being provided at the extremity of its inner end with an internal bead of such a size as to afford the necessary substance for allowing the inner end of the nipple to be expanded on to the surface of the main.

969,440. FIRE-BOAT. Charles B. Askew, Chicago, Ill. Serial No. 450,956.

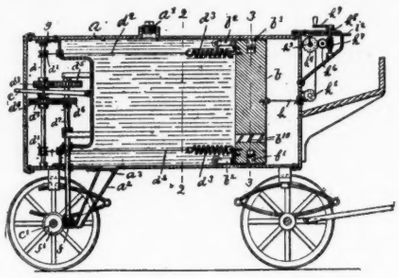
In a fire boat, a cabin, provided with hollow metal walls, means for circulating



water through said walls, hydraulic monitor exterior to said cabin, and means for operating said monitor extending into and operable from said cabin.

969,217. STREET-FLUSHING APPARATUS. William H. Stewart, St. Louis, Mo. Serial No. 406,227.

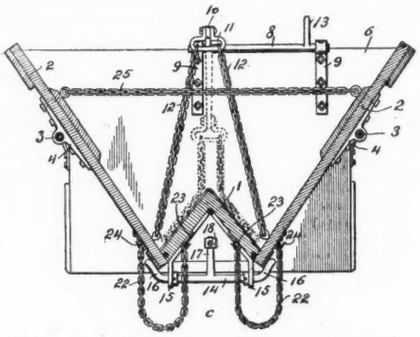
In a street flushing apparatus, the combination of a water-containing reservoir, a piston movable therein, actuating-mechanism connected with said piston for moving it to produce a pressure on the water con-



tained in the reservoir, a revolving member on the truck frame, means for connecting the actuating mechanism with and disconnecting it from said revolving member, means for locking said actuating mechanism and for holding the piston in any position it may occupy to maintain the pressure on the water when the actuating mechanism is disconnected from the revolving member, a device for disengaging said locking means, permitting return of the piston, and actuating means connected with the piston for returning it to its normal position, substantially as described.

969,258. DUMPING-WAGON. Hallett D. ELLS, Kansas City, Mo., assignor of one-fourth to Henry M. Godard, Kansas City, Mo. Serial No. 503,190.

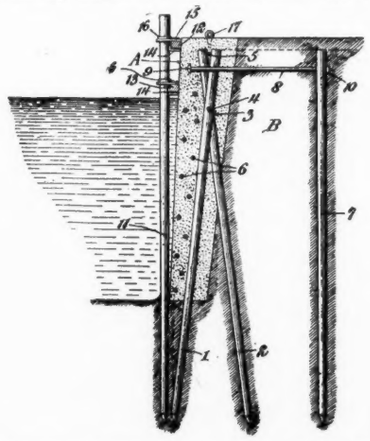
In a dumping wagon, the combination with a wagon bed having two swinging sides mounted respectively on horizontal parallel pivots, said sides swinging out-



wardly at their lower edges to the open position, means for engaging said sides adjacent to their lower edges for holding the sides in the closed position, and a flexible device having its ends secured respectively to said sides at points above their pivots, said flexible device being drawn taut when the sides are in a closed position.

969,706. SEA-WALL OR WHARF CONSTRUCTION. John Emil Kjilberg, Mobile, Ala., assignor of one-half to Charles G. Ollinger, Mobile, Ala.—Serial No. 532,068.

In a structure of the class described, a wall of concrete or the like, and a row of vertically disposed reinforcing and support-



ing elements partially embedded in the wall and driven into the foundation of the wall, said elements comprising connected piles arranged in crossed relation.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
			STREET IMPROVEMENTS	
Utah	Salt Lake City	Sept. 16	Grading, curbing, guttering extension 15, 2d Ave., and Alto St.	H. G. McMillan, Chm. Bd. Pub. Wks
Ohio	Wapakoneta	Sept. 16	Paving Auglaize st., from C. H. & D. Ry. to Main st.	Fred. A. Kliplel, City Clerk.
Pennsylvania	Harrisburg	Sept. 16, 2 p.m.	Bldg. 3 roads, 5,900, 5,500 and 1,076 lin. ft.	J. W. Hunter, State Hwy. Comr.
Washington	Seattle	Sept. 16, 10 a.m.	Grading and regrading various streets	C. B. Bagley, Sec'y Bd. Pub. Wks.
Ohio	New Boston	Sept. 16, noon	Laying concrete sidewalks on 3 aves., and Grace st.	Roy Coburn, Chm. St. Com.
Missouri	St. Louis	Sept. 16, noon	Grading Kingshighway from Forest Park blvd. to so. line, Forest Park	M. R. H. Witter, City Clerk
Nebraska	Lincoln	Sept. 16, noon	Grading, paving, sidewalks, etc., various sts., 2 contracts	Roscoe C. Ozman, City Clerk.
Ohio	Ashtabula	Sept. 16, noon	Grading, draining, etc., Martin st., Columbus st. to Harmon rd	C. F. Brotherton, Dir. Pub. Serv.
Ohio	Trenton	Sept. 16, noon	Grading and graveling State st.	Louis Brill, Village Clerk.
Missouri	Kirkwood	Sept. 17	Improving Dickson st., from Main st. to St. L. & K R. R. tracks	Thomas B. Smith, City Clerk.
Illinois	Cairo	Sept. 17, 10 a.m.	Brick paving, 59,975 sq. yds., Commercial ave., $135,410.	W. B. Thistlewood, City Engineer.
Wisconsin	Racine	Sept. 17, 10 a.m.	Concrete paving, 2 jobs; concrete curbing, 2 jobs	P. H. Connolly, Pres. Bd. Pub. Wks.
New York	New York	Sept. 17, 11 a.m.	Regulating and repaving with sheet asphalt various sts., maintaining asphalt on Broadway from Canal to 14th st., repair. asphalt block pavement in boro., and furn. 3,000 cu.yds.sand.	Geo. McAneny, Pres., Manh. Boro
Indiana	Frankfort	Sept. 17, 2 p.m.	Bldg. 11 gravel roads, total length, 90,506 ft., separate bids	Charles F. Cromwell, County Aud.
Missouri	Webb City	Sept. 19, 5 p.m.	Bldg. 6959 sq. yds. asphalt-macadam pavement; check $50.	A. J. McKenzie, City Engineer.
Ohio	Lakewood	Sept. 19	Paving Northland and Franklin aves., Evers Eng. Co., Arcade, Cleveland	B. M. Cook, Village Clerk.
Pennsylvania	Harrisburg	Sept. 19, noon	Paving 107,518 sq. yds., curbing, 100,587 ft., 58 jobs, $312,986	W. W. Caldwell, Highway Comr.
Oklahoma	Oklahoma City	Sept. 19, 5 p.m.	Asphalt paving 302,670 sq. yds., 23 sections, cost $984,937	W. C. Burke, City Engineer.
Alabama	Montgomery	Sept. 19, noon	Paving, any suitable material, grad., curb, etc. Madison ave.	Robert Tait, City Treasurer.
Ohio	Batavia	Sept. 19, noon	Repairing the Ohio Turnpike, 2 contracts	J. L. Larkin, County Auditor.
Minnesota	Brainerd	Sept. 19, 8 p.m.	Grading Sixth street, south	V. N. Roderick, City Clerk.
Kansas	Junction City	Sept. 20, 3 p.m.	Macadamizing, filling, curbing, guttering, West Fifth st.	W. F. Muenzenmayer, Mayor.
Oklahoma	Norman	Sept. 20, 6 p.m.	Paving, curbing, etc., various sts., 2 contracts	A. R. Clement, City Clerk.
New Jersey	Newark	Sept. 20, 3.45 p.m.	Furn. and delivering 13,000 cu. yds. earth or ash fill on field	Sec'y. Board of Education.
Ohio	Linden Heights	Sept. 20	Bldg. sidewalks and gutters in village	Village Council.
Utah	Midvale City	Sept. 20, 8 p.m.	Bldg. cement sidewalks, 5,000 ft. long, Dist. No. 1	Hyrum Goff, Mayor.
New York	Auburn	Sept. 20, 8 p.m.	Paving Osborne st. with Medina sandstone block, 1,800 ft. curb.	Elbert C. Aldrich, City Engineer.
Oklahoma	Hugo	Sept. 20, 8 p.m.	Paving, curb, gutter, drain, grading, etc., ten streets	H. C. Blanchard, City Engineer.
Oklahoma	Norman	Sept. 20	Grading, curbing and paving various streets	A. R. Clement, City Clerk.
New Jersey	Belleville	Sept. 20, 9 p.m.	Grading, laying cement walks, etc., so. side Joralemon st.	C. Lyman Denison, Chm. Twp. Com.
New Jersey	Summit	Sept. 20, 8.30 p.m.	Laying 2,700 sq. ft. cement sidewalk on Springfield ave.	John S. Stiger, City Engineer.
Dist. of Col'bia	Washington	Sept. 20, 2 p.m.	Constructing concrete sidewalks, gutters, roads, etc., Wash. Bar.	Lt. R. G. Alexander, Wash. Bar'ks.
Indiana	Hammond	Sept. 21, 10 a.m.	Paving, grading, curbing, etc., various sts., 2 contracts	Adam R. Ebert, Cnm. Bd. Pub. Wks.
New York	Brooklyn	Sept. 21, 11 a.m.	Laying 14,770 sq. ft. sidewalks, curb, grading, etc., Church and 59th sts.; furn. 200 tons refined asphalt to city plant	Alfred E. Steers, Boro. President.
Washington	Olympia	Sept. 21	Grading, draining, etc., State aid road No. 86, Walla Walla Co.	H. W. Bowlby, Sec'y. St. Hwy. Bd.
Washington	Spokane	Sept. 22, 2 p.m.	Granitoid concrete paving, curbing, walks, grading, etc., 2 sts.	Geo. W. Armstrong, Sec'y. Bd. P. W.
Ohio	Toledo	Sept. 23	Repairing with macadam Door st., Adams Twp.	C. J. Sanzenbacher, Co. Auditor.
California	Hermosa Beach	Sept. 23	Warrenite paving, on 5-in. bituminous concrete base, $60,000.	E. McCoskey, City Clerk.
West Virginia	Huntington	Sept. 23, 1 p.m.	Excavating 2.480 cu yds., bldg. sewer in alley	John Coon, Comr. of Streets.
Ohio	Bellaire	Sept. 24, noon	Furnishing stone ready for crusher on pikes in Pultney Twp.	John P. Lowman, Clk. Pultney Twp.
New Jersey	Ringoes	Sept. 26	Bldg. 2,924 lin. ft. macadam road, to Ringoes Station	Grant Davis, Co. Engr., White H.Sta.
Ohio	Toledo	Sept. 26	Grading, draining and macadamizing Corduroy Road	John B. Marston, County Surveyor.
Indiana	Anderson	Sept. 27	Brick paving and grading 5,435 lin. ft. Pendleton ave., And. tp.	Wm. T. Richards, County Auditor.
Pennsylvania	Harrisburg	Sept. 29	Improving Osceola-Philipsburg road, 5,100 lin. ft., 16 ft. wide, with brick or proprietary method; 9,070 sq. yds. bit. macadam or 7,940 sq. yds. brick with 10,250 lin. ft. concrete curb.	Jos. W. Hunter, State Hwy. Comr.
Ohio	Cincinnati	Sept. 30, noon	Paving, curbing, grading, etc., various sts., 5 contracts	Stanley Struble, Chm. Co. Comrs.
Flordia	Fort Dade	Oct. 5	Bldg. brick or concrete roads and concrete walks	Constructing Quartermaster, U.S.A.
Illinois	Peoria	Oct. 15	Resurfacing Perry ave. with asphalt	Geo. E. Simmons, Pres. Bd.Loc.Imp.
			SEWERAGE	
Utah	Salt Lake City	Sept. 16	Bldg. pipe sewers in Extension No. 221, Floral ave.	H. G. McMillan, Chm. Bd. Pub. Wks.
Nebraska	Alliance	Sept. 16, noon	Bldg. lateral sewer in Dist. 20; Grant & Letton, Lincoln, Engrs.	F. W. Irish, City Clerk.
South Dakota	Doland	Sept. 16, 8 p.m.	Bldg. 5,350 ft. sewer outlet and drain	P. L. Brown, City Auditor.
New Jersey	Rutherford	Sept. 16, 8 p.m.	Bldg. surface system, concrete intakes, etc., E. Pierpoint ave.	F. A. Stedman, Borough Clerk.
Ohio	Ashtabula	Sept. 16, noon	Constructing sewers in Mill and Strong sts.	A. J. Richardson, Clk. B. P. Serv.
Wisconsin	Oshkosh	Sept. 16, 10 a.m.	Bldg. sewer in E. Lincoln ave. Dist.	J. E. Maliery Pres. Pd. Pub. Wks.
Illinois	Dixon	Sept. 17, 10 a.m.	Bldg. 3300 ft. vit. tile storm and sanitary sewer, etc.	L. B. Neighbor, City Engineer.
Wisconsin	Waupaca	Sept. 17	Constructing sewers and a septic tank	Thos. Morgan, Chm. Bd. Pub. Wks.
Ohio	Newburg	Sept. 17, noon	Bldg. sewers and water mains in various streets.	J. W. Shimek, Clk. Bd. of Control.
California	Brawley	Sept. 19	Bldg. $18,000 sewer system	W. H. Whelan, City Clerk.
New Jersey	Chatham	Sept. 19	Bldg. joint disposal plant and trunk sewer	Councils of Madison and Chatham
Indiana	Columbus	Sept. 19, 7.30 p.m.	Bldg. 3,000 ft. vit. sewer and laterals	Wm. H. Rights, City Engineer.
Florida	Jacksonville	Sept. 19, 2:30 p.m.	Draining "Highland" low lands in Northwestern section	Philip Prioleau, City Engineer.
Ontario	Trenton	Sept. 19	Bldg. concrete sedimentation tank and laying 890 ft. 15-in., 665 ft. 12-in., and 987 ft. 8-in. sewer pipe. T. Aird Murray, C.E.	G.W. Ostrom, Town Clerk.
Iowa	Eagle Grove	Sept. 19	Bldg. a sanitary and drainage sewer in Dakota st. & Lincoln ave.	Sam Middleton, City Clerk.
Iowa	Cedar Falls	Sept. 19, 7.30 p.m.	Bldg. sanitary sewers in portions of various sts.	H. Jacob Pfeiffer, Mayor.
New Jersey	Summit	Sept. 20, 8.30 p.m.	Bldg. 4,960 ft. 8 and 10-in. vit. pipe, sewer, etc., Springfield av.	J. E. W. Rowe, City Clerk.
Idaho	Preston	Sept. 20	Furn. 3 000 ft. sewer and drain pipe, dig and backfill 38,000 ft. 4.5 ft. trench and lay 38,000 ft. pipe; bldg. cement reservoir.	John A. Morrison, Sec. W.N.W.W.Co
Indiana	South Bend	Sept. 20, 10 a.m.	Bldg. pipe sewer in E. Calvert st., from Michigan to Winter st.	Otto C. Bastian, Pres. Bd. Pub.Wks.
Wisconsin	West Allis	Sept. 20, noon	Furn. and lay 3,338 ft., 18-in.; 1,034 ft., 15-in.; 4,240 ft., 12-in.; 9,634 ft., 10-in.; 6.234 ft., 8-in. pipes, 92 manholes, etc.	L. F. Fish, City Clerk.
Texas	El Paso	Sept. 20, 10 a.m.	Bldg. complete garbage refuse and sewerage disposal plant; sewerage plant capacity, 3,000,000 gals, daily, refuse distructors, 3 tons per hour	C. W. Fassett, City Clerk
Iowa	Vinton	Sept. 20, 8 p.m.	Bldg. 1,600 ft. of 8-in. sewer, 3 manholes, 1 flush tank, etc.	S. N. Parsons, Engineer.
California	Oakland	Sept. 21, 11 a.m.	Bldg. storm sewer in San Pablo ave., $5,000 bond	W. B. Fawcett Sec'y Bd. Pub.Wks.
Washington	Spokane	Sept. 22, 2 p.m.	Bldg. Fifth Ward trunk sewer, Dist. No. 10; Ord. A5519	F. P. Weymouth, Pres. Bd. Pub. Ws.
West Virginia	Huntington	Sept. 23, 1 p.m.	Bldg. lateral sewers in alley bet. 11th and 12th sts, 2 blocks.	John Coon, Comr. of Streets.
Illinois	Princeton	Sept. 23, 8 p.m.	Bldg. 3,476 ft. 15-in., d.s. sewer, av.cut, 14 ft., 12 manholes, etc.	J. M. Farrell, City Clerk.
Ohio	Nottingham	Sept. 24	Bldg. sewer in portion of Sackett ave.	J. C. Steinicke, Village Clerk.
Ohio	Oberlin	Sept. 25, noon	Constructing a sewer in Hollywood st.	H. T. Marsh, Village Clerk.
New Jersey	Atlantic City	Sept. 26, 8 p.m.	Bldg. storm water drainage system for city: A—200 ft. 15 ft.x 10 ft., 6 in.,and 9,450 ft., 10 ft. 6 in. x 9 ft. rein. concrete conduit; 964 ft. brick, concrete and t.c. drains 15-in., to 5x2 ft., manholes, inlets, catchbasins, etc. B—10,390 ft. brick, concrete and t. c. pipe 4 ft. x 2 ft. 9 in. to 12-in. diam., manholes, inlets, etc. T. C. Hatton, Wilmington, Del; Cons. Engr.	E. D. Rightmire, City Engineer.
Michigan	Cadillac	Sept. 27	Bldg. sewage pumping station and equipment	Geo. Johnston, Clk. Bd. Pub. Wks.
New York	Thiells	Sept. 27, 10.30 a.m.	Bld. sewer and water systems for Letchworth Village	F. B. Kirkbride, 55 Wall st., N.Y.C.
Pennsylvania	West View	Oct. 1, noon	Bldg. main sewer and disposal plant, plans by Trimble & Miller, Fourth ave., Pittsburg	H. L. Donaldson, Boro. Sec'y.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
			WATER SUPPLY	
Kansas	Russell	Sept. 16, 3 p.m.	Bldg. water works light system: Burns & McDonnell, Engrs.	James R. Freed, Mayor.
Iowa	Sioux City	Sept. 17, 9 a.m.	Installing deep well for tubing, centrifugal pumping outfit and station; G. B. Healey, Supt. of Parks	City Clerk.
Ohio	Newburg	Sept. 17	Bldg. water mains in 3 streets; sewers in 3 streets	Wm. H. Evers, Eng. Co., Anale, Cld.
Indiana	Connersville	Sept. 17	Bldg. water works system; J. B. Marvin, Frankfort, Engr.	William Reeder, Clk. Bd. Pub. Wks.
New York	Roslyn	Sept. 19, 11 a.m.	Furn. 1,600 tons c. i. pipe, 40 tons specials, 125 fire hydrants, 148 valves and boxes, brick and concrete pumping station, 2 triplex pumps, 2 50 h. p. gas engines with gas producers, lay 14 miles pipe; Walter E. Sexton, Engineer, Mineola	J. F. Remson, Chm. Water Bd.
Minnesota	Cloquet	Sept. 19	Furn. and lay 7,000 ft. 6-in. waterpipe, 7,000 ft. 8-in. sewer pipe, 18 manholes, excav. and backfill 7,400 cu. yds. earth and rock.	J. A. E. Grenier, City Clerk.
Michigan	Detroit	Sept. 20, noon	Bldg. and erecting 25,000,000 gal. pumping engine	B. F. Guiney, Sec'y Bd. Wt. Comr.
Idaho	Preston	Sept. 20	Bldg. cement reservoir, furn. 34,000 ft. wood pipe and 3,000 ft. sewer and drain pipe, dig and backfill 38,000 ft. 4.5 ft. trench.	J. A. Morrison, Sec'y Whitney-Nashville Water Works Co.
Illinois	Carlyle	Sept. 20, noon	Erecting bldg., one 200-225 h.p. and two 110-125 h p. boilers, automatic engine, 150 kw., a.c. generator, 5,544 ft. 4-in. water mains, specials, etc.	John C. Lampen, City Clerk.
Illinois	Lyons	Sept. 20, 8 p.m.	Furn. and erect deep well pump, motor and accessories	A. E. Depew, Village Clerk.
Ohio	Port Clinton	Sept. 22	Bldg. municipal filtration plant; low service pumps, coagulating basins, filters, clear well, filtered water reservoirs, coagulating services, wash water pump, air blower, etc.; W. E. Clark, Civil Engineer, Toledo	Scott Stahl, Pres. Trus. Pub. Affrs.
Oklahoma	Haskell	Sept. 22, 2 p.m.	Furn. and lay 12,800 ft., 6-in.; 17,200 ft., 4-in. c. i. pipe, 25 fire hydrants; 7,650 lbs. fittings; 18 valves and boxes; galv. iron, pump house, two pumps, 500 gal. comb cap.; boiler, steel tower and tank, 120 ft. max. water tees, 60,000 gals cap.	Jas. T. Gates, Engr., Wagoner.
Ohio	Nottingham	Sept. 24	Bldg. water mains, Sackett ave. & St. Clair st., sewer in Ave.	J. C. Steinicke, Village Clerk.
Maryland	Ft. Howard	Sept. 26	Bldg. 3 rein. concrete cisterns and piping, etc.	Constructing Quartermaster.
Minnesota	Farmington	Sept. 26, 8 p.m.	Drilling 5-in. well, pump house, triplex pump, steel tank, 9,630 ft. 4, 6 and 8-in. water mains, 20 fire hydrants, etc.	L. A. Whittier, Village Recorder.
New York	Thiells	Sept. 27, 10.30 a.m.	Bldg. water and sewer systems, $60,000 bond	F. B. Kirkbride, 55 Wall st., N. Y. C
Illinois	Depue	Sept. 27	Sinking an artesian well 1,300 ft. deep; G. M. Bryant, Engr.	Charles E. Pope, Village Clerk.
Indiana	Evansville	Sept. 29, 10 a.m.	Furn. and erect 2 steam-driven pumps or pumping engines, 12,000,000-gal., lift 13 to 62 ft.; bids wanted on all types	H. L. Heilman, Sec'y Water Board.
Georgia	Atlanta	Sept. 30	Furn. 4,550 ft. 4-in., 1,200 ft. 6-in. c. i. pipe, specials, hydrants, 1,200 ft. 6-in. and 1,400 ft. 4-in. sewer pipe, 50,000 brick; motor driven pump, etc., at Tuberc. San., at Alto	Ex. Com. Tuberc. San., Gould Bldg.
Arizona	Yuma	Sept. 30	Bldg. concrete reservoir and concrete houses at Poor Farm	P. J. Miller, Clk. Co. Supervisors.
			BRIDGES	
Pennsylvania	Harrisburg	Sept. 16, 2 p.m	Bldg. 2 cement masonry and rein. concrete bridges	J. W. Hunter, State Hwy. Comr.
Ohio	Cincinnati	Sept. 16, noon	Bldg. concrete bridge over Toad Creek	F. Dreihs, Clk. Bd. Co. Comrs.
Wisconsin	Boscobel	Sept. 16	Bldg. 2 cement and steel foot bridges and stone arch bridge	W. W. Blair, Clk. Comr. on Sts.
Missouri	Clayton	Sept. 16	Bridge masonry, derrick work, concrete masonry and culvert wk.	W. Elbring, County Hwy. Engr.
Indiana	Frankfort	Sept. 17, 10 a.m.	Constructing and repairing bridges	C. F. Cromwell, County Auditor.
Ohio	Delaware	Sept. 17	Bldg. approach and fill for Utley bridge	W. H. Bodurtha, County Auditor.
Ohio	Lisbon	Sept. 19, noon	Bldg. rein. concrete skew arch to replace bridge No. 40, near pump station at E. Palestine, replanking Walnut st. bridge	C. H. Coburn, County Auditor.
California	San Jose	Sept. 19, 11 a.m.	Bldg. rein. concrete bridge and fill in Campbell Creek	Henry A. Pfister, Clk. Co. Supervs.
Oklahoma	Pawnee	Sept. 19	Bldg. 5 bridges, stone arch or steel structures, stone piers	Frank Shoemaker, County Clerk.
Colorado	Denver	Sept. 20, noon	Bldg. 32-ft. concrete steel bridge over Coal Creek in Teller Co.	Charles W. Comstock, State Engr.
Pennsylvania	Franklin	Sept. 21, 1 p.m.	Bldg. two 60 ft. rein. concrete arch spans, with 18-ft. brick paved roadway; or 104-ft. single span riveted steel girder bridge, with 18-ft. solid rein. concrete floor, also additions to present abutments, paving, etc., and removing McQuaid bridge over Sugar Creek	Bd. Comrs. of Vanango County.
Louisiana	Thibodaux	Sept. 23	Installing electric light plant; bldg. $4,000; mach., $35,000	R. J. Maquin, City Clerk.
North Carolina	Elizabeth	Sept. 26	Bldg. $10,000 bridge for Camden Ferry Co., C. A. Robinson, Sec.	J. W. Hays, C. E., Petersburg, Va.
Ohio	Cincinnati	Sept. 30	Bldg. 2 concrete bridges, Colerain and Whitewater twps	Fred Dreihs, Clk. Co. Comrs.
Texas	Dallas	Oct. 1 10 a.m.	Bldg. Oak-Cliff concrete viaduct: 43 500 cu. yds. rein. concrete, 100-ft. steel span, 40,000 lin. ft. concrete piling, 8,600 lin. ft. timber piling, etc., plans, etc., $5; J. F. Witt, Co. Engr.	John L. Young, County Judge.
			LIGHTING AND POWER	
Illinois	Chicago	Sept. 16, 11 a.m.	Repairing electric light stations at Fullerton ave. and the Chicago river and at Chicago ave. and Sedgwick st.	William Carroll, City Electrician.
Kansas	Russell	Sept. 16, 3 p.m.	Furn. elec. equipment, 75 k.w. internal combustion and high-speed dir.-con. engines, 50 h.p. gasoline engine, 42-in. brick chimney, 80 ft. high, pipe, tank, basins, etc., for water and light plant	James R. Freed, Mayor.
Louisiana	Thibodaux	Sept. 23, noon	Remodeling electric light plant	H. N. Coulon, Town Clerk.
Nebraska	Omaha	Sept. 24, noon	Installing elec. wire and conduits for power and light, also telephone conduits for County Court House	D. M. Haverly, County Clerk.
Ohio	Jackson	Sept. 29	Furn. material, enlarging and improving mun. elec. light plant.	W. A. Dallas, Clk. Trus. Pub. Affrs.
Georgia	Atlanta	Sept. 30	Bldg. 18 x 24-ft. brick power house, supply current, oil or gasoline generating set, etc., Tuberculosis Sanatorium at Alto.	Ex. Com. Tuberc. San., Gould Bldg.
New York	Hudson	Oct. 1, 1 p.m.	Furnishing and installing power house equipment, etc.	Bd. Mgrs. State Train. School.
			MISCELLANEOUS	
West Virginia	Wheeling	Sept. 16, 11 a.m.	Bldg. lock and dam No. 12, Ohio river, also lock and guide walls bear trap weirs and Chanoine weir, Dam 19	F.W. Altstaetter, Capt. U. S. Engrs.
Indiana	Mishawaka	Sept. 16	Erecting a firehouse	Jas. L. Kennedy, City Clerk.
Ohio	Delaware	Sept. 17	Straightening 5,500 yds. of the channel	W. H. Bodurtha, County Auditor.
Massachusetts	Springfield	Sept. 19	Plumbing work in new Fire Headquarters Building	R. W. Wight, Chm. Fire Hdqrs. Bg.
Indiana	Mishawaka	Sept. 19, 6 p.m.	Erecting North Side hose house, readvertisement	J. L. Kennedy, City Clerk.
Minnesota	Proctor	Sept. 19	Constructing a jail	Herbert I. Schill, Village Recorder.
Louisiana	New Orleans	Sept. 19, 11 a.m.	Bldg. rein. concrete sea wall on pile foundation, 2,700 ft. long and 14 ft. high, Lake Pontchartrain, also for filling in with earth dredged from lake, 400,000 cu. yds. behind wall	C. R. Kennedy, City Comptroller.
Indiana	Huntington	Sept. 19, 10 a.m.	Improving county jail	J. W. Weaver, County Auditor.
Texas	El Paso	Sept. 20, 10 a.m.	Bldg. complete garbage, refuse and sewage disposal plant; capacity of refuse distributors, 3 tons per hour; sewage plant, 3,000,000 gals. daily; Pub. Wks. Eng. Co., Beck bldg., Portland, Ore.	C. W. Fassett, City Clerk.
Pennsylvania	Philadelphia	Sept. 20	Bldg. $40,000 neighborhood bldg., 2-story and base., 144 x 40 ft., 32x64-ft. wading pool, shelter shed, baseball diamond, swings, merry-go-arounds, etc., $15,000 additional, at Starr Garden; Philip H Johnson, Arch.	J. R. C. McAllister, Chm. Playg. Com.
Ohio	Dayton	Sept. 20, noon	Furn. auto patrol wagon; also auto ambulance and equipment.	C. N. Greer, Sec'y Dir. Pub. Safety.
Pennsylvania	Wilkes Barre	Sept. 23, noon	Bldg. 28 steel cells in city lockup, also installing sweeper vacuum cleaning systems in City Hall and Lockup	Edward Eyerman, Chm. P. Prop. Com.
Washington	Aberdeen	Sept. 28, 5 p.m.	Clearing 250 acres, filling 1,500,000 cu. yds., construct. 4,000 ft. drain for improving tide lands	P. F. Clark, City Clerk
Wisconsin	Green Bay	Sept. 30, 10 a.m.	Furnishing a two-horse police patrol wagon	John S. Farrell, Chm. Finance Com.
Ohio	Cincinnati	Sept. 30	Bldg. culverts and laying drain pipe in Race ave., Green Twp.	Fred Dreihs, Clk. County Comrs.
Ohio	E. Youngstown	Oct. 1	Erecting a brick, stone and frame city building	R. F. Thompson, Arch, Youngstown.
Indiana	South Bend	Oct. 4	Bldg. detention hospital	J. W. Harbou, County Auditor.
New York	New York	Oct. 27	Bldg. new subways, 41 miles of trackage; cost $125,000,000; two plans, one by private capital other with city money.	Public Service Commission.

STREET IMPROVEMENTS

Prescott, Ariz.—Board of Supervisors is considering building road from this city to Walnut Grove; distance, 40 mi.; cost, $7,500.

Little Rock, Ark.—City is considering paving of 15th st. with brick or asphalt on concrete base; also grading, curbing and paving with vitrified brick 11th st., Schiller ave., Park ave., 13th st.—George A. Stratman, Mayor.

Texarkana, Ark.—Miller County will petition Legislature for power to issue $400,000 road bonds.

Oakland, Cal.—Construction of cement walk from Oak st. to pumping plant is being considered.

Orange, Cal.—Citizens have voted $5,000 bonds to pave Plaza.

Colorado Springs, Colo.—J. W. Hunter, of Denver, has been chosen to prepare plans for parking and paving of principal streets.

Denver, Col.—State Highway Commission of Colorado has made following appropriations for the construction of roads: To Mesa County, for the road from DeBeque to Palisade, $2,500; to Prowers County, $1,000; to Montrose County, $1,500; to Archuleta County, $1,000.

Fort Collins, Col.—Council has decided to build proposed Lake Park sewer system at cost of $22,413.

Hartford, Conn.—Plans for proposed State road work have been received by the State Highway Commissioner from Division Engineer E. C. Welden for two sections in the town of Union, aggregating 5,400 lin. ft. and 2,000 lin. ft. in the town of Stafford.

Washington, D. C.—Owner of a large sugar plantation and a member of the Board of Directors of society formed for the purpose of opening up country roads in the West Indis wishes information regarding road roller known as the "King drag." Address No. 5464, Bureau of Manufactures.

Washington, D. C.—American Consul writes from Asia that entire street system of one of the cities is in process of reconstruction, and that $125,000 will be expended during 1911 and $125.750 during 1912 for this purpose; steam roller in use is the 10 to 15-ton, costing $175 to $225 per ton. Address No. 5463, Bureau of Manufactures.

Washington, D. C.—American consul in Germany reports that in addition to the usual repair and extension work on streets and roads in his district, about 100,000 sq. ft. of new pavement will be laid in near future; prices for American machinery should be given, if possible, in German currency, and free, including duty and freight, to purchaser.—Address No. 5444, Bureau of Manufactures.

Wilmington, Del.—Street and Sewer Directors have decided to ask Court of General Sessions to appoint commission to condemn land for road to Delaware River.

Bartow, Fla.—City will construct one mile of vitrified brick pavement on Main st.; also five miles of brick or cement sidewalks and gutters.—Charles H. Walker, Mayor.

Fort Pierce, Fla.—St. Lucie County Commissioners are having plans prepared for proposed construction of 70 miles of hard-surfaced roads.

Atlanta, Ga.—County has decided to grade road leading from Marietta st. to Hollywood Cemetery; Board approved recommendation that River road be graded, paved and widened from the Sandtown road to Adamsville road, and ordered also the grading, paving and widening of the Stephens Mill road from the Almshouse property to the Roswell road; C. D. Tuller, Clyde King and Julian B. Oglesby have been appointed a committee on widening of Marietta road; road will be paved to Atlanta Northern Railway.

Cedartown, Ga.—City will construct about 1,900 sq. ft. of cement sidewalks and 275 lin. ft. 30-in. combination curb and gutter on grounds of Water and Light Department.—H. N. Van Devander, Chairman Water and Light Commission.

Elberton, Ga.—Citizens have voted bonds to macadamize streets.

Springfield, Ill.—Canedy st. will be paved with asphalt.

Indianapolis, Ind.—Board of Public Works will soon award contract for heavy steam road roller; also has passed resolutions for the following improvements: paving Audubon road, Washington boule., Raymond, Maryland and 13th sts.

Indianapolis, Ind.—Board of Works has confirmed resolutions for improving eight streets.

New Albany, Ind.—City Engineer C. W. Appleby has completed plans for paving and improving 14th st.; also constructing granitoid sidewalks thereon.

Richmond, Ind.—George H. Eggemeyer, representing the Second National Bank, has purchased $56,600 bonds for improvement of the National road west.

Jeffersonville, Ky.—Number of voters of Owen township have filed petition with Board of County Commissioners for a free gravel road extending from line of Bethlehem township to Charlestown township.

Chester, Mass.—Highway Committee has been authorized to purchase amiesite, dustless and auto-proof road material for surfacing South ave. at cost not to exceed $1,200.

Grand Rapids, Mich.—Council has decided to grade, gravel and improve Doezoma Court.

Kinross, Minn.—Nicholas Township Board will build six-mile road from Wolf to Ellis.

Little Falls, Minn.—City is considering paving bridge with creosote blocks; estimated cost, $6,500 to $7,000.

Minneapolis, Minn.—Board of Park Commissioners of Minneapolis will construct a boulevard in Bryn Mawr.—J. A. Ridgeway, Secretary.

Jackson, Miss.—Hinds County Board of Supervisors will issue formal order declaring $200,000 bond issue for First and Fifth Supervisor's Districts, to be used in building good roads leading into Jackson.

Kansas City, Mo.—Council has adopted resolutions providing for paving repairs on 42 streets, including Holmes, 17th, Jefferson, Summit, 9th, 16th and other streets.—James L. Darnell, City Engineer.

Monett, Mo.—Council has passed ordinance providing for paving of Broadway, 4th and 5th sts. with brick; cost, $50,000.

Webb City, Mo.—Council has ordered City Engineer A. J. McKenzie to prepare plans, specifications and estimates for resurfacing with asphaltic oil 41,282 sq. yds. of macadam pavement.

Atlantic City, N. J.—Boardwalk Committee is considering paving several blocks of promenade with concrete laid upon expanded metal steels.

Columbus, N. J.—State Road Department will use portions of the roads from Chambers' Corner to Columbus and Jobstown for testing new road binder.

Elizabeth, N. J.—County Freeeholders are considering extension of South First st.

Elizabeth, N. J.—City Council has passed ordinances providing for paving of Rankin and Bond sts.; property owners of Dewey Place have decided to have street paved with vitrified brick.

Ridgefield Park, N. J.—Board of Trustees has adopted plans for improvements to Queen Anne road.

Trenton, N. J.—Council has passed ordinance for paving State st., from Overbrook to Parkside aves., and of Parkside ave. from the water power to the canal feeder with filbertine; paving of Fairmount ave. and widening of New York ave. is being considered.

Syracuse, N. Y.—Council has decided to pave Canal st. at cost of $38 800.

Circleville, O.—Issue of $4,000 resurfacing bonds has been sold to Seasongood & Mayer, Cincinnati.

Fremont, O.—Sandusky County Commissiners have sold to the First National Bank of Fremont $6.348 county road bonds.

Hamilton, O.—Plans are being prepared by City Engineer F. Weaver, for 1½ miles of brick, wood block, asphalt block or sheet asphalt paving along East ave. and South B st.—C. M. Robertson, Clerk Board of Control.

Middletown, O.—Council has passed an ordinance for construction of sidewalks, curbs and gutters on Yankee rd.—C. Heffner, Mayor.

Steubenville, O.—Issue of $12 000 street improvement bonds sold to Thomas Johnson, city.

Klamath Falls, Ore.—Council has passed ordinance providing for paving of a portion of Main St. with bitulithic; cost, $113,716.

Portland, Ore.—Cost of paving Milwaukee st. with Hassam pavement has been estimated at $129.474.

Roseburg, Ore.—Council has authorized paving of 50 blocks.

Pittsburg, Pa.—Citizens will vote in November on following bonds: $400,000 for raising flood streets, $115,000 for Troy st. crossing, and $860.000 for improving streets.

Scranton, Pa.—Council is considering following ordinances: Plans, specifications and estimate of cost of paving Lafayette st. and resurfacing Sanderson ave. with brick; also for sidewalks on number of streets.

Wall, Pa.—Citizens have voted $35,000 bonds for paving with brick and concrete curb.—Harrop, Hopkins & Taylor, 900 Lewis Blk., Pittsburg, Engineers.

Chattanooga, Tenn.—Ordinance providing for appropriation of $10,000 for widening of Rossville ave. from East End ave. to the new Rossville blvd., and for opening Missionary ave., has been passed by Board of Aldermen.

Logan, Utah.—State Road Commissioner J. W. Jenson has completed specifications governing the construction of State roads in Cache, Box Elder, Tooele, Juab, Summit, Morgan and Rich counties; plans are made for installation of troughs for watering teams, culverts of concrete, bridges of steel, expanded metal or concrete.

Olympia, Wash.—City will improve streets to south line of city park at cost of $12,250.—J. R. Vever, City Clerk.

Seattle, Wash.—Poplar st. will be paved at cost of $10,000.

Tacoma, Wash.—City will improve 7th, 12th and A sts., and alley between A st. and Pacific ave.

Eau Claire, Wis.—Council has ordered cement concrete sidewalks on Main st.; sewers on Lincoln and other streets; macadam pavement, curb and gutter on Galloway st.

Sydney, N. S., Can.—Two hundred ft. of concrete sidewalks is to be laid on Dorchester st. this month, as weil as 1,300 ft. combined curb and gutter on George st.

CONTRACTS AWARDED

Pasadena, Cal.—To W. A. Dontanville for grading Euclid ave. in the Glenarm district, and also Ohio st., $4,457.82; Chamberlain & Williamson bid $4,999.91; J. E. Haddock, $5,066.85; Desire Degryse, $5,170.59.

Leadville, Colo.—Paving Montclair Parkway; Suburban Paving Dist. No. 1, including 17th ave., Monaco and Fir sts. to Municipal Constr. Co., $98,750.

Hartford, Conn.—Town of Suffield, 7,754 lin. ft. macadam-telford road on Springfield turnpike, including five 12-in. and two 15-in. tile culverts, to Olmsted & Olmsted, East Hartford, $1.98 per lin. ft. for macadam, $3.18 per lin. ft. for telford and $1 per lin. ft. for rubble drain; Town of Simsbury, 4,090 lin. ft. macadam-telford road on Main st., including 16 12-in. tile culverts, to Olmsted & Olmsted, East Hartford, $2.04 per lin. ft. for macadam, $3.29 per lin. ft. for telford; Town of Bloomfield, 2,474 lin. ft. macadam-telford road on Blue Hills ave., including one 24-in. tile culvert, to Sternberg & Cadwell, West Hartford, $1.77 per lin. ft. for macadam, $2.50 per lin. ft. for telford; other bidders were: Pierson Engineering and Construction Co., Bristol, $2.40 and $3.90; Olmsted & Olmsted, East Hartford, $1.86 and $2.75; Town of New Hartford, 2,799 lin. ft. macadam-telford road on the Winsted turnpike, including two 15-in. and one 18-in. tile culverts, to C. A. Rossi, Torrington Conn., $2.50 per lin. ft. for macadam, $3.45 per lin. ft. for telford, 72c. per lin. ft. for rubble drain and $5.50 per cu. yd. for masonry; other bidders were: Joseph Mascetti, Torrington, Conn., $2.60, $3.35, 75c. and $6.50; Sternberg & Cadwell, W. Hartford, $2.75, $3.50, 75c. and $6; Pierson Engineering & Const. Co., Bristol, $4.40, $5.40, $1 and $7; Town of Harwinton, 14,100 lin. ft. gravel-telford road on the Thomaston turnpike, including four 18-in. eight 15-in. and five 24-in. tile culverts and two reinforced concrete arch culverts, to A. Vito, Thompson, $1.47 per lin. ft. for gravel, $2.07 per lin. ft. for telford, 98c. per lin. ft. for rubble drain and $5.50 per cu. yd. for masonry; other bidders were: Joseph Mascetti, Torrington, $1.54, $2.30, 75c. and $5.50; Edwin B. Alfred, Union City, $1.55, $2.25, $1 and $5.50; Pierson Engineering & Construction Co., Bristol, $2.90, $3.90, $1 and $6; Town of Goshen, 9.715 lin. ft. graded-telford road on the Norfolk turnpike, including two 12-in., three 20-in., twelve 24-in., one 15-in. and two 18-in. tile culverts and one reinforced concrete arch culvert, to Joseph Mascetti, Torrington $12,000 for the entire grading, with 75c. per lin. ft. for telford and 80c. per lin. ft. for rubble drain; Town of Winchester, 7,516 lin. ft. graded-telford road on the Norfolk turnpike, including two 12-in., six 15-in., four 18-in. and two 24-in. tile culverts and one reinforced concrete arch culvert, to Joseph Mascetti, Torrington, $8,642 for the entire grading, with 72c. per lin. ft. extra for telford and 75c. per lin. ft. for rubble drain; Town of Barkhamsted, first section, 8,907 lin. ft. graded-telford road on the Hartford-Winsted turnpike, including one 12-in., three 18-in., two 15-in., seven 24-in. tile culverts and two reinforced concrete arch culverts, to Sternberg & Cadwell, West Hartford, $16,834 for the entire grading with 71c. per lin. ft. extra for telford and $1.25 per lin. ft. for rubble drain; other bidders were: Joseph Mascetti, Torrington, $25,550, 75c. and 75c.; Pierson Engineering and Construction Co., Bristol, $24,494, $1 and $1; C. A. Rossi, Torrington, $15 250, 72c. and 75c.; B. D. Pierce, Jr., Co., Bridgeport, $22,270, 65c. and $1; second section, 10 236 lin. ft. graded-telford road, including four 15-in., one 18-in., one 24-in. and three 30-in. tile culverts and three reinforced concrete arch culverts, to C. A. Rossi, Torrington, $25.325 for the entire grading 72c. per lin. ft. extra for telford and 80c. per lin. ft. for rubble drain; other bidders were: Joseph Mascetti, Torrington, $26.050, 75c. and 75c.; B. D. Pierce, Jr., Co., Bridgeport, $30.000, 60c. and $1; Pierson Engineering and Construction Co., Bristol, $35,826, $1 and $1.

Palatka, Fla.—To Jas. Padgett, Jr., of Crescent City, for constructing hard surface road, $2 800; bids for constructing two other roads, 2 miles, rejected as too high.

Twin Falls, Ida.—Laying 84,000 sq. ft. of

concrete paving to F. W. Whittier, 13c. per sq. ft.

Chicago Heights, Ill.—Paving Lowe ave. to H. G. Myrick, $5,890, and Wallace st., to Chicago Heights Coal Co., $5,975.

Wilmette, Ill.—To M. Gilsdorf & Sons, 176 Randolph st., for combined highway bridge and pumping station.

Elkhart, Ind.—Cement sidewalks: A. B. Brouse was the only bidder on Elkhart ave. improvement, submitting bid of 8.74c. per sq. ft., and on the Randolph fill improvement on Franklin st., Contractor Brouse placed bid of 7.48c. per ft., while Contractor A. C. Smitly submitted another of 7.8c.; Contractor Brouse only bidder on walks on Cleveland ave., 8.98c. per sq. ft., and he had no competition in the Maryland ave. bids at 8c. per ft.; Mr. Smitly filed the only bid on Dale st. improvements, 7.8 per sq. ft.; contracts will be awarded to low bidders.

Misnawaka, Ind.—To Hoban & Roach, to construct Webster st. pavement; Indiana block is material to be used.

Rushville, Ind.—Macadam highway on line between Orange and Anderson townships, to Philip Wilk & Co., $8,750.

Caney, Kan.—Paving Wood and High sts., to Johnson & Hyatt, $36,215.

New Orleans, La.—Finance Committee has recommended acceptance of bids of Barber Asphalt Co., Philadelphia, Pa., for repairing Montegut st., $6,092, and subsurface drainage for same, $2,940; paving Conti st. at $2,013, and subsurface drainage, $1,361.

Boston, Mass.—To Central Constr. Co., Hanover, Pa., for paving portion of Hancock st. with brick block, about $25,000.

Brookline, Mass.—Filling cut west of Chestnut Hill ave., to Dennis Driscoll, 35c. per cu. yd.

Dorchester, Mass.—Paving Hancock st. with brick blocks, to Central Construction Co., 683 Atlantic ave., Boston, James P. Timility, President, $25,000.

Palmer, Mass.—Building 8,200 ft. of highway to Worcester Broken Stone Co., 21 Adams st., Worcester, $4,922.

Westfield, Mass.—Paving with sheet asphalt, Park sq., to Barber Asphalt Paving Co., New York, N. Y., $20,447.

Detroit, Mich.—Paving the following streets: Parker ave. with cedar blocks to T. E. Currie, $5,343; Waterloo st. with cedar blocks to W. W. Hatch & Sons Co., Hammond Bldg., for $7,053.

Duluth, Minn.—Paving with granitoid blocks, Irving Pl., 7th and Clover sts., to John A. Johnson, $27,033.

Duluth, Minn.—Macadamizing W. Fifth st. to E. Hawarden, $2.462.43.

Jackson, Miss.—To Barber Asphalt Paving Co. for paving with asphalt, Conti, St. Louis and Montegut sts.

Mt. Holly, N. J.—Construction of new stone road from Pemberton to Vincentown, to E. C. Humphrey, $22,452.65; other bidders, Barret Construction Co., $23,012.60; Kelly M. Pheely Co., $23,058.57, and J. F. Shanley Co., $23,250.11.

Newark, N. J.—To Alexander J. Milmore, grading and flagging of Shephard ave., Mapes ave. and Lehigh ave., each from 600 feet west of Bergen st. to Osborne terrace, total, $6,788.37; grading and curbing South Twelfth st. to William Ballard, $4,441.50; flagging of Bryant Place and North Twelfth st. to Henry Schreitmueller, $1,423.70.

Newark, N. J.—Grading and paving Pleasant Valley way, between Bloomfield ave., Verona, and Mountain ave., West Orange, to Robert Doriety, 29 Highland ave., $29,624.95; other proposals were Frank Bruno, city, $35,683; Donato Fusco, Montclair, $30,138; Monroe Paving Co., Philadelphia, $30,728; Peter and Philip Jannorone, Belleville, $32,314; Francis J. Marley, Little Falls $32,368; R. C. McMains, Caldwell, $30,072; improvement will cover four miles of roadway and telford will be used.

Trenton, N. J.—Paving Decatur st., to Thos. J. McGovern; Beatty st., to the Filbertine Co.

Little Falls, N. Y.—Local contracting firm, Cooper-Snell Co., has taken over from Belew & Merritt contract for the construction of State road between the old Ira Timmerman Hotel and Dolgeville.

Canton, O.—Vitrified block paving, tar fill, to Wise, Smith & Krabill of Canton, W. Lake St., $12,217; to Turnbull & Dehn, of Canton, on E. North St., $11,485; and same contractor for Oaklawn ave., $11,182; to Burd & Downs, of Canton, for N. McKinley st., $19,791, and same contractor for W. 3d st., $2,228.

Cincinnati, O.—Improvement of Harrison and New Haven road, to John Ruebel Construction Co., $29.267.

Massillon, O.—Paving East Cherry and North Erie sts., to Philip Diefenbach & Sons; curbing and guttering of eight streets, as follows: Pearl and Dwight sts., to George P. Williams; Wissmar, South Waechter, Green and Walnut sts. and Woodland and Commonwealth aves., to Urban & Schott.

Worthington, O.—Improvement of Sect. No. 1 of the Smith-Davis Road, a stretch of 19,000 ft. from Worthington to Elmwood and south, to R. E. Keys at $8,400.

Ogden, Utah.—Improving Hudson ave., to P. J. Moran, Salt Lake, $47,561.66; Moran also received contract for improvement of the intersection of 23d, 24th and 25th sts. on Washington ave., $9,914.26.

Ogden, Utah.—Street paving in Dist. No. 102, to P. J. Moran, Salt Lake, asphalt surface, concrete foundation, 60c.; total, $57,475.92; other bidders: M. J. Moran, city, $61,164.75; Strange & Maguire, Salt Lake City, $62,658.79; Wheelright Construction Co., $69,276; curbing, recurbing and grading Dist. No. 102, to J. P. O'Neill Construction Co., selling 1,320 lin. ft. new curb, $1,789; other bidder, Moran Contracting Co., $1,900; sidewalks, Dist. No. 109, to J. P. O'Neill Construction Co., $6,420; other bidders: Moran Contracting Co., $7,116; McKay & Read, $6,650, and Wheelright Construction Co., $6,989.34.—W. M. Bostaph, City Engineer.

Huntington, W. Va.—To Harrison & Dean for paving Eighth ave. and Twentieth st., Portsmouth granite, $1.20 per sq. yd.; to Freshwater & Sons, Chester, for paving Fourth ave. and Seventh ave. ,$1.37 on Metropolitan block; to Ullom & Scanlon, for paving of Van Buren ave and West Thirteenth st., $1.17 on Portsmouth granite.

Wausau, Wis.—Sidewalks in front of two new engine houses, to Badger Construction Co., 9.5c. per sq. ft.; sewer on Town Line rd., to Lutz & Hasse, $1.16 per ft. of 15-in. and 61c. for 12-in. main.

Prince Rupert, B. C., Can.—Plank roadway, to La Trace. at $782.45, and grading to Swanson, at $3,822; in the latter the City Engineer tendered at $4,000.

BIDS RECEIVED

Los Angeles, Cal.—Improving a portion of Huntington Drive, 6,000 ft. in length, W. F. Hewitt Co., Pacific Electric Bldg., $7,489; class A, concrete, $8.50 per cu. yd.; class C, $8.25 per cu. yd.; reinforcing steel, 3c. per lb.; Oscar Ford, $9,073; class A, concrete, $12; class C, $10; steel, 6c. per lb.

Washington, D. C.—Furnishing steam roller, Austin-Western Co., Chicago, Ill., $2,350 for 7-ton and $2,450 for 8-ton. American; Iroquois Iron Works Co., Philadelphia, Pa., $2,163, single, and $2,152.07, tandem; Kelly-Springfield Roller Co., Philadelphia, Pa., $2,190 for 8-ton tandem.

Carrollton, Mo.—Brick paving, United States Construction Co., $85,301; J. C. Lykes, $83,440, awarded contract; McGuire-Stanton Construction Co., $85,898.

Buffalo, N. Y.—Paving Barton st., German Rock Asphalt and Cement Co., asphalt paving, $6 290; Henry P. Burgard, brick, $5,000; Ledger st., German Rock Asphalt and Cement Co., $6,648 for asphalt; Henry P. Burgard, $5,300 for brick; Princeton pl., German Rock Asphalt and Cement Co., $6,420 for asphalt; Henry P. Burgard, $5,100 for brick; Rano st., F. V. E. Bardol, $4,944 for asphalt; Henry P. Burgard, $3,800 for brick; Republic st., German Rock Asphalt and Cement Co., $12,920 for asphalt; Henry P. Burgard, $11,000 for brick; Vandalia st., Henry P. Burgard, $4,000 for asphalt; same bidder lowest at $3,000 for brick; German Rock Asphalt and Cement Co., lowest for medina sandstone at $4.970.

New York, N. Y.—Regulating, grading, setting curbs, flag, etc., fences, in West Farms road from Morris Park ave. to Westchester ave., lowest bidder B. C. Murray at following bid: 1,750 cu. yds. of earth excavation, 99c.; 1,100 cu. yds. rock excavation, $1.65; 32,000 cu. yds. of filling, 19c.; 4,150 lin. ft. of new curb, furnished and set, 90c.; 17,500 sq. ft. new flagging, furnished and laid, 22c.; 5,750 sq. ft. new bridgestone for crosswalks, furnished and laid, 45c.; 2,900 cu. yds. dry rubble masonry in retaining walls, culverts and gutters, $1.45; 10 cu. yds. brick masonry, $16; 750 lin. ft. of vit. 12-in. stoneware pipe $2.50; 125 lin. ft. vit. 15-in. stoneware pipe, $2.75; 100 lin. ft. of vit. 18-in. stone ware pipe, $3.25; 1,000 feet (B. M.) of lumber, furnished and laid, $30; 685 lin. ft. new iron fence in place, $1.75; 4,800 lin. ft. guard rail in place, 10c.; 800 cu. yds. of class "A" concrete, $11; 102,900 lbs. of steel rods in place, 4½c.; 4 manholes, complete each $75; 9 catch basins, complete, each $75; 15 cu. yds. of rubble masonry in mortar, $5.50; W. H. Graner bid for the work $49,429; paving with asphalt block on a concrete foundation, Boscobel ave., and setting curb, lowest bidder Barber Asphalt Paving Co., as follows: 9,575 sq. yds. asphalt block pavement, to be kept in repair, $1.69; 2.515 cu. yds. concrete, including mortar bed, $5.90; 1,000 lin. ft. new curb, set in concrete, 79c.; 5,100 lin. ft. old curb, rejointed, recut on top and reset in concrete, 33c.; 7,510 sq. yds. completed asphalt block pavement, not to be kept in repair. $1.69; total, $45.577; Hastings Pavement Co. bid for the work $46,841; regulating and repaving with sheet asphalt on concrete foundation portions of E. 140th, E. 141st and E. 142d sts., and setting curb, and the lowest bid was that of the Asphalt Construction Co., 3,330 sq. yds. completed sheet asphalt pavement, including binder course, and keep in repair for five years, $1.07; 610 cu. yds. concrete, $4; 1,650 lin. ft. new curb, 75c.; 800 lin. ft. old curb, reset, 30c.; total, $7,481; Barber Asphalt Paving Co. bid for the work $8,130.

New York, N. Y.—Regulating and repaving with iron slag on concrete foundation the roadway of 41st st. and 44th st., from 5th ave. to 6th ave., Uvalde Asphalt Paving Co., $19,522; R. L. Russell, $18,795; MacFarland Contracting Co., $18,406; regulating and repaving with asphalt block pavement on concrete foundation the roadway of 49th st., from 4th ave. to 6th ave., Barber Asphalt Paving Co., 30 Church st., New York. $15,529; Hastings Pavement Co., 25 Broad st., New York, $15,327; repaving with asphalt on a concrete foundation roadway of St. Nicholas ave., from Himrod st. to Ralph st., and Ralph ave., from St. Nicholas ave. to borough line, Uvalde Asphalt Paving Co., $11,194; Borough Asphalt Co., $10,947; Cranford Co., $11.165; Barber Asphalt Paving Co., 30 Church st., city, $11,215.

Dayton, O.—David Beard was low bidder on paving following streets with brick: Wyoming, $11,816; Wyoming, from Phillips to the east line of Creighton, $3,697; Burns ave., $9,035; Logan st., $2,477, and 6th, $3.060.

Youngstown, O.—West Market st. improvement, O. B. France, lowest bidder, $2,159.22; other bidder, E. E. Morgan, $2,414.39; repairs on Portage st. bridge, O. B. France, $1,483.70; other bidder, E. T. Hovey, $1,512.50.

Providence, R. I.—Granolithic walks at South and Ruggles Parks, Mitchell Nicholson, $1.12 per yd. and 47c. per lin. ft. for gutter; Puleston & McDougall, $1.07 per yd. and 54c. for gutter; Beattie & Cornell, 91c. per yd. and 52c. for gutter; W. A. Borden, 93c. per yd. for Ruggles Park, 81c. for South Park and 34c. for gutter.

Vancouver, B. C., Can.—Second ave. paving, Hassam Paving Co., $61,000; bitulithic paving of 10th ave., from Granville st. to Laurel ave., Warren Construction Co., $35,547; wood block paving 4th ave., from Cedar to Maple sts., Palmer Bros. & Henning, $21,800; M. P. Cotton & Co., $22,255; 2½ miles of concrete work, M. P. Cotton & Co., 15c. per sq. ft.; for sewer pipe, according to specifications suomitted, Evans, Coleman & Evans, vit. pipe, 3-ft. lengths, 10-in., 29½c.; 12-in., 37c.; 14-in., 55c.; 18-in., 80c.; 20-in., $1.14½; 24-in., $1.99½; Dominion Glazed Cement Pipe Co., cement pipe, 2-ft. lengths, 10-in. 39c.; 12-in., 50c.; 14-in., 75c.; 16-in., 95c.; 18-in., $1.20; 20-in., $1.50; 24-in., $2.25.

SEWERAGE

Phœnix, Ariz.—Bids will be received Oct. 1 for $325,000 sewer bonds.—Frank Thomas, Recorder.

Biggs, Cal.—City Trustees are considering construction of sewer system.

Orange, Cal.—Citizens have voted $16,000 sewer bonds; money available Jan. 1; Plans have been completed for outfall sewer system.

Santa Cruz, Cal.—Council has passed resolution ordering construction of sewer in a portion of Van Hess ave.—J. L. Wright, Clerk.

Newark, Del.—City proposes to expend about $30,000 for sewers.—Wilbur Wilson, City Engineer.

Wilmington, Del.—Resolution was adopted by Council authorizing Street and Sewer Department to build trunk line sewers in 28th st.

Fort Myers, Fla.—Citizens have voted $35,000 bonds for construction of sewer system.

Fulton, Ill.—Plans are being prepared by Engineer Edw. O. Hills, Morrison, Ill., for sewer system.

Monmouth, Ill.—Plans are being prepared by City Engineer J. S. Bates for sanitary and storm water sewers; cost $10,000; work to be done next spring.—J. S. Brown, President Board of Local Improvements.

Michigan City, Ind.—County Commissioners are about ready to pass on plans which City Engineer Shoecraft, Laporte, submitted to Commissioners for sewage disposal works and plumbing improvements at County Asylum, former to cost $2,500 and latter $1,800.

Hampton, Ia.—Council has selected M. Tschirji, Jr., Dubuque, to prepare plans for sewage disposal plant.

Concordia, Kan.—Plans have been prepared by Engineers J. S. Worley & Co., Reliance Bldg., Kansas City, Mo., for storm water drainage; city will do the work.—H. Kennett, Mayor.

Easton, Md.—Sewerage Commission, consisting of Gen. Jas. B. Seth, Alex. Foun-

tain and W. H. Withgot, has been appointed by Mayor Higgins to draft plans and take charge of building proposed sewerage system.

Detroit, Mich.—The City Council has directed Board of Public Works to advertise for bids for constructing the following vit. brick lateral sewers: No. 2144 in alley, cost per lin. ft., $1.50; No. 2149 in alley, cost per lin. ft. $3.

Grand Rapids, Mich.—Council has decided to construct sewer on North Lafayette st.

Gilbert, Minn.—Citizens have decided to bond vilage for $35,000 for a sewerage system and to complete the local water works system.

Amory, Miss.—Solomon-Norcross Co., Atlanta, Ga., are preparing plans for construction of sewers; cost $50,000.—J. P. Johnson, Mayor.

Florence, Neb.—Plans are being prepared by John P. Crick, C. E., 824 Brandeis Theater Bldg., Omaha, for storm and sanitary sewer system.

Bridgeton, N. J.—Council, Sept. 6th, authorized Clyde Potts, Engr., 30 Church st., N. Y., to prepare plans and specifications for trunk sewer covering practically all of city; bids will be asked for probably some in October.—Jacob B. Jones, City Clerk; John N. Glaspell, President of Council.

Monmouth Beach, N. J.—Clyde Potts has been retained by the vilage to design sewers and sewage disposal works.—Jesse W. Potter, Clerk.

Ridgefield Park, N. J.—Board of Trustees has adopted plans for sewer extension in Austin st.

Trenton, N. J.—Council has passed ordinances for sewers in Kent, Division and Spruce sts., also in five avenues.

Marysville, O.—Council has decided to install sanitary sewerage system.

Piqua, O.—City Engineer A. Schroeder has completed plans for north end storm water sewer, length one mile, including 9 manholes, 10 catch basins and 15-in. catch basin pipe.

Britton, Okla.—Citizens will vote on $15,000 bonds for construction of sewer system.

Portland, Ore.—Sewer Commission has rejected bids for construction of the Holgate st. sewer system; new bids will be received; estimated cost, $102,000.

Chester, Pa.—Bids will be asked for constructing sewers on three streets.

Lebanon, Pa.—Select Council has passed bill calling election on $110,000 bonds for house sewage disposal plant.

Olyphant, Pa.—Council has passed ordinance providing for construction of sewer on Sanderson st.—Thos. F. O'Hara, Secretary.

Pittsburg, Pa.—Citizens will vote in November on $850,000 bonds for sewers, four streets and two bridges.

Scranton, Pa.—Estimate of cost and plans will be prepared for sewer on Wood st.

Sharon, Pa.—Contract for plans of comprehensive sewerage system and disposal plant, in accordance with demands of State Board of Health, will probably be let at October meeting of Council.

Cleveland, Tenn.—Citizens will vote Oct. 4 on $35,000 sewerage bonds.

Everett, Wash.—Construction of larger sewer has been recommended.

Madison, Wis.—City Engineer John F. Icke has prepared plans for new and larger sewage disposal plant; cost about $183.000.

Vancouver, B. C., Can.—City Engineer Celment has recommended construction of a pipe sewer of the combined system, varying in size from 12 to 18 inches. in the lane east of Granville st sewer on Glen drive, from 8th to 15th ave., varying in size from 18 to 36 inches; probable cost $18,400; 42-in. sewer will be constructed on Semlin drive; cost approximately $5,000.

CONTRACTS AWARDED

Pasadena, Cal.—To M. L. Hostetter, Henne Bldg., Los Angeles for construction of reinforced-concrete storm sewer on B'way, $162.800; other bidders: Westlake Constr. Co., Byrne Bldg., Los Angeles, $166,215, and Andrew Holloway, Pasadena, $174,000; sewer will be 7 ft. high, 10 ft. wide and 14,500 ft. long, and will require 175,000 lb. of steel and 15,000 lb. cement.

Wheaton, Ill.—Constructing sewers, bids opened Aug. 23, to C. R. Michals, Caney, Kan., about $12,000.

Libertyville, Ind.—Sewers, to W. F. Brunt, Hammond, $11,028.

Columbus Junction, Ia.—Construction of sewer system, to Independence Construction Co., Davenport, $3,770.

Georgetown, Ky.—To Howard Bell, Lexington, Ky., to construct 1 035 ft. of 42-in. and 36-in. reinforced concrete storm water drain.—Alexander Potter, 114 Liberty st., New York, Consulting Engineer; J. H. Cleary, City Clerk.

Winchester, Ky.—To Lewis Co., $39,418.13, for construction of sanitary sewerage system for this city.

Zumbrota, Minn.—Construction of proposed sewer extension, to Wm. Fraser, Rochester, $3,255; other bidders, W. D. Lovell, Minneapolis, $3,512, and K. Overn, St. Peter, $3,571; work comprises 1,490 ft. of 10-in. and 800 ft. of 8-in. pipe.

Lockport, N. Y.—Drain in Evans st., to F. J. Le Valley, Sr., $1,980.

Rochester, N. Y.—Sewage disposal plant for the Tuberculosis Hospital, to Bert Warren, Honeoye Falls, $5,400; hospital buildings were let to H. P. Sickels Co., city, $69,290.—Thomas J. Bridges, Chairman Monroe County Building Commission.

Winston-Salem, N. C.—To L. B. Brickenstein, to construct sewers in Crafton Heights.

Kenmare, N. D.—Furnishing 12-in., and 10-in. pipe sewer and manholes, to J. D. Benson, $1.34, $1.29 and $55.

Canton, O.—Constructing Liberty and Saxton st. storm sewer to Turnbull & Dehn, city, $25,528.

Huron, S. D.—Sewer construction, to Brookings Construction Co., Brookings, $5,732; other bidders, L. W. Schruth, Fargo, N. D., $5,939, and Jones & Roderick, Sioux Falls, $5,969.

Ogden, Utah.—Building sewers, District No. 105, to Moran Contracting Co., $17,495; other bidders, McKay & Reed, $25,600; J. P. O'Neill & Co., $19,900; Wheelwright & Co., $18,864; District No. 106, to McKay & Reed, $8,970; other bidders, Moran Contracting Co., $10,000; J. P. O'Neill Construction Co., $9,100.—Wm. M. Bostaph, City Engineer.

Toronto, Ont., Can.—Sewer construction in Township of York, to John Maguire, Spadina road, $4.000; F. B. Goodman tendered at $4 330; E. J. Elliott at $4,079.

BIDS RECEIVED

San Luis Obispo, Cal.—Sewage disposal ground, and equipping same, Charles W. Deacon, $10,420, and $9,936, respectively; H. D. Payne, $10,780 and $10,240.

WATER SUPPLY

Hartselle, Ala.—City desires bids on boring well for municipal water supply.

Corning, Cal.—Town Trustees have adopted ordinance providing for $48,000 bond issue for water works and $21,000 for sewer system.—F. E. Kenney, Mayor.

Lordsburg, Cal.—City will install municipal water works from plans of Olmsted & Gillelen, Wright & Callender Bldg., Los Angeles.

Modesto, Cal.—Board of City Trustees has had estimates prepared for improvements as follows: Water $15,000, sewers $65,000, and paving $10,000.

Santa Barbara, Cal.—Citizens have authorized issue of $200,000 bonds for completion of city water tunnel under Santa Ynez mountains north.

Denver, Col.—Citizens have voted $8,000,000 bonds to construct municipal water plant; temporary injunction against issuance of bonds taken.

Olathe, Col.—Election will be held in November on $100,000 bonds for water works.—W. S. Foster, Montrose, Engineer.

Washington, D. C.—District Commissioners will incorporate in their estimates this coming year a request for $750,000 for installation of high pressure water service.

Washington, D. C.—American Consul in Mexico reports that company in United States has been granted franchise to install and operate electric light and water works systems in one of the cities; town and federal authorities have contracted for water to be supplied to all schools, public buildings and parks, and many citizens have arranged for individual service; arc lights are to be used for the streets, and incandescent lights for the interior of all public buildings; contracts have been made for about 2,000 incandescent lights in private houses, and arrangements partially completed for using electric current for power purposes; investment represents $75,000. Address No. 5458, Bureau of Manufactures.

Washington, D. C.—American Consul reports that municipality in India has been granted leave to contract a loan of $259,520 for the purpose of extending the existing water works system; water supply is to be brought a distance of 115 miles. Address No. 5461, Bureau of Manufactures.

Fort Myers, Fla.—Citizens have voted $15,000 bonds for construction of water works.

Milledgeville, Ga.—Water Co. is considering removing of the pumping station so as to obtain a supply from Oconee River.

Kingston, Ill.—Village Council is considering construction of water works; cost, $3.800.

Princeton, Ill.—Board of Local Improvements will soon be ready for figures on new filter beds; cost $5,000.—J. M. Ennis, Chairman.

Roanoke, Ind.—Olds Construction Co., Fort Wayne, Ind., has estimated the cost of construcing proposed water works at $14,950.

Merrill, Ia.—Citizens have voted to construct water works.

Sioux City, Ia.—Plans of F. W. Cappellen, of Minneapolis, Minn., have been adopted for auxiliary water plant for east side; cost about $7,500.—G. B. Healy, Superintendent Water Works.

Underwood, Ia.—Citizens have voted $5,000 bonds for new water works system.

Cherryvale, Kan.—Plans have been prepared by Engineers J. S. Worley & Co., Reliance Bldg., Kansas City, Mo., for system of water works; cost $100,000.—E. E. Bellamy, City Clerk.

Elliinwood, Kan.—Construction of water works and a sewer system is being considered.

Cumberland, Md.—City has selected Jas. H. Fuertes, of New York, N. Y., as engineer for the proposed water works; State Legislature has authorized issuance of $500,000 bonds if the voters would sanction same.

West Bridgewater, Mass.—Citizens have voted to construct water works; cost about $7,500.

Detroit, Mich.—Needed water pipe extensions will be made in Highland Park with proceeds of the $31,000 bond issue authorized by voters.

Marble, Minn.—Citizens have voted $30,000 bonds for water works.

Minneapolis, Minn.—Council has adopted resolutions for construction of water mains of c. i. pipe in number of streets.

Decatur, Neb.—Water works system will be installed at a cost of $15,000.

Pennington, N. J.—Borough Councilmen have decided to have concrete cistern erected in borough.

Somerville, N. J.—Engineer Nicholas S. Hill, Jr., of New York, N. Y., has submitted report on four different projects for water works, as follows: Project No. 1, pumped, filtered surface supply from the North Branch of the Raritan River, near North Branch Depot, cost $218,915. Project No. 2, gravity unfiltered surface supply from the North Branch of Rockaway Creek, near Mountainville, cost $377,655. Project No. 3, gravity filtered surface supply from the Black or Lamington River at a point about 1 and ¼ miles north of Pottersville, cost $389,071. Project No. 4, pumped, filtered and softened, underground water supply from wells located on the Raritan River, near Finderne Station, cost $222,883.—Chas. C. Kenyon, Mayor.

Binghamton, N. Y.—Bids will be asked about Nov. 15 by Board of Water Commissioners for the construction of a reservoir.—Clinton L. Bogart, 57 East 129th st., New York, Consulting Engineer; John D. Davidson, Secretary.

Geneva, N. Y.—Board of Public Works is considering improvement of water supply at a cost of $162,000; for construction of a complete filtration plant, $40,000; a new 20-in. force main from pumping station to reservoirs, the acquirement of the necessary rights of way, connections and the like, $57,000; for construction of new concrete storage reservoir, 75 ft. above the present reservoirs and necessary connections, $30,000; for new pump with a daily capacity of 4,000,000 gals., additional boiler capacity, new intake pipe and crib in the lake, $35,000.

Irondequist, N. Y.—City is considering construction of new water works system.

Keeseville, N. Y.—All bids opened Aug. 25 for laying approximately one mile of 10-in. c.-i. water pipe, and constructing a reservoir for new source of water supply from plans of W. G. Stone, 9 Mann Bldg., Utica, have been rejected; work will be readvertised in spring.

Lockport, N. Y.—Bids will be asked for water pipes in four streets.

Oriskany Falls, N. Y.—Citizens have voted to establish gravity system of water works at cost of $30,000.—A. M. Scripture, New Hartford, Engineer in Charge.

Potsdam, N. Y.—Construction of standpipe is being considered.

Mount Airy, O.—Council has passed ordinance calling election early in October on $14,000 bonds to defray cost of piping Cincinnati water to village.

Toledo, O.—Increasing of capacity of filtration plant from 20 000,000 gals. daily capacity to 34.000.000 gals. is being considered.—Geo. W. Tonson, Chief Engineer, Board of Public Service.

Toledo, O.—High pressure water mains, exclusive of pumps and river connections, will cost $120.030, according to estimate furnished Council by Water Superintendent J. M. Wisler.

Alva, Okla.—City is considering construction of steel tower and laying 5.000 ft. of 4 and 8-in. water mains.—G. W. McNeeley, Mayor.

Britton, Okla.—Citizens will vote on $35,000 bonds for construction of water works.

Pendleton, Ore.—City is considering question of procuring a water supply:: pipe line may be constructed from the forks of Umatilla River above Wenaha Springs to Pendleton.

Erie, Pa.—Cost of cementing and completing first of the large settling basins in the water works park on peninsula has been estimated for Water Commissioners at about $58,170.

Harrisburg, Pa.—Plans and specifications for the proposed reservoir, pump house, machinery and pipe lines for high service pumping station that will take care of the new Thirteenth Ward have been approved by Councils; cost $125,000.

Pittsburg, Pa.—Citizens will vote in November on following bonds: $800,000 for north side pumping station, $1,200,000 for north side reservoir, $100,000 for pumping station repairs, $200,000 for Baffles filtering contrivances, $100,000 for west end water supply, and $700,000 for filtration.

Fort Mill, S. C.—Town Council is considering construction of water works.

Gettysburg, S. D.—Tuttle & Pike, Shubert Theater Bldg., Kansas City, Mo., have been selected as engineers for proposed water works.

Willow Creek, S. D.—Citizens have voted $5,800 bonds to sink four artesian wells.

Athens, Tenn.—Company has been formed by W. Gettys, H. H. Mattock and others to construct water works.

Caldwell, Tex.—Citizens are considering $5,000 bond issue for construction of steel standpipe.

Comfort, Tex.—Steves & Stahmank will construct steel tower 30 ft. high with 10,000-gal. water tank, pumping apparatus, etc.

Hearne, Tex.—Construction of municipal water works is being considered.

Temple, Tex.—Water Works Commission will expend $25,000 in near future for perfect filter system.

Salt Lake City, Utah.—City Engineer Geo. F. McGonagle has completed plans for construction of an 18-in. c.-i. water main from a point 1½ miles above present high line intake to 13th ave. and J st., length about four miles; cost about $135,000.

Burlington, Wash.—Arrangements are being made by Burlington Commercial Club for installation of a city water plant at estimated cost of $7,000; city will be supplied from a 100,000-gal. tank 180 ft. above the city on a hill; two mains, 6 and 8 ins. in diameter, respectively, are to be laid on Anacortes and Fairview aves., giving 1½ miles of pipe line with 3 miles of laterals.

Hillyard, Wash.—Town will vote Oct. 11 on $25,000 bonds for new reservoir.

Spokane, Wash.—Board of Fire Underwriters has recommended installation of special separate high-pressure fire fighting water system for business district; cost $200,000.

Walworth, Wis.—Citizens have voted $18,000 bonds for water works system.

New Liskeard, Ont., Can.—Water works extension by-law has been passed.

Ottawa, Ont., Can.—Conference is to be held between the City Engineer and the Fire Chief in regard to the purchase of more hydrants.

Sydney, N. S., Can.—Extensions to water main will shortly be made to extent of half a mile, under supervision of D. McD. Cameron, City Engineer.

CONTRACTS AWARDED

Opelika, Ala.—Furnishing material and constructing water works and electric light plant from plans of J. B. McCrary Co., 1311-15 Empire Bldg., Atlanta, Ga.: Engine, 4-valve, to Erie Engine Co., $2,950; generator, to Fort Wayne Co., $3,250; street lights, to Western Electric Co., $1,118; transformers, to Westinghouse Co., $1,782; steam pumps, to Worthington Co., $1,650, and to same company heater and feed pump, $307; centrifugal pump and motors, to Platt Iron Works Co., $1,928; boilers, to Casey Hedges Co., $2,250; stand pipe, to Chattanooga Boiler & Tank Co., $6,804; cast-iron pipe and specials, to U. S. Cast Iron Pipe and Foundry Co., $21.60 per ton on pipe and $50 per ton on specials; total, $26,723; valves, to Crane Co., $811, and hydrants, to R. D. Wood Co., $2,011.

Cheyenne Wells, Col.—Constructing water works, to Des Moines Bridge and Iron Co., Des Moines, Ia., $4,990.

Colorado Springs, Col.—Extending water mains to include 10,400 ft. 4-in. pipe, 5,000 ft. 6-in., 925 ft. 10-in. and laying same, to Barnes-Stephens Co., $11,852.

Hampton, Ia.—Constructing a 75,000-gal. tank on 80-ft. steel tower and laying mains, etc., to Des Moines Bridge and Iron Co., Des Moines, $6,134.

Georgetown, Ky.—Lynch & Eddy, Louisville, who secured contract for erecting chemical filtration purification and softening plant for Georgetown's water supply, have given contract for furnishing materials and machinery to L. M. Booth & Co., of New York.

Baltimore, Md.—To Thomas C. Basshor Co., 28 Light st., to construct pipe line system at Bayview Asylum.

Easthampton, Mass.—Laying 7,400 ft. of 6-in. water pipe, to E. M. Dineen & Co., Springfield, $2,276.

Grand Rapids, Mich.—Installing pumping machinery in connection with filtration plant, from plans of Hering & Fuller, of New York, N. Y., to the Fort Wayne Electric Co., Fort Wayne, Ind., for Buffalo steam pumps and Fort Wayne motors, at the following bid: Three vertical centrifugal pumps with electric motors, each of a capacity of 5,600 gals. per minute, average lift 26 ft., $6,206; two vertical centrifugal pumps with electric motors, each of a capacity of 2,900 gals. per minute, average lift 26 ft., $2,945; two vertical centrifugal pumps with electric motors, each of a capacity of 1,000 gals. per minute, average lift 38 ft., $2,495; one vertical centrifugal sump pump, complete, capacity 180 gals. per minute, average lift 15 ft., $597; wiring, etc., $182; total, $12,425.

Hampton, Minn.—Building 75,000-gal. steel tank on an 80-ft. steel tower, laying 6-in. mains and placing gates, specials and fire hydrants, to Des Moines Bridge and Iron Co., Des Moines, Ia., $6,134.

Hudson, Minn.—Construction of a dam on Kinnickin River, to R. A. Lang, Eau Claire, Wis.

Mankato, Minn.—To Fairbanks-Morse & Co., of Chicago, Ill., for laying water mains to Catholic Mothers' Home in Dukes' addition and to Evangelical Lutheran Seminary in East Mankato, $3,571.

High Bridge, N. J.—Extension of the water works, to Lehigh Engineering-Contracting Co., Real Estate Trust Bldg., Philadelphia, Pa., $22,320, plus $100 per acre for clearing and $2.75 per yd. for rock; this bid covered 12-in. c.-i. pipe; work includes enlarging present storage reservoir, building catchment reservoir with forebay and laying approximately 3 miles of new main.—E. A. Stevens & Co., E. Newark st., Hoboken, Engineers.

Winston-Salem, N. C.—To L. B. Brickenstein, to construct water works system in Crafton Heights.

Kenmare, N. D.—Water and hydrants, to J. D. Benson, $1.26 and $60.

Millersburg, O.—Constructing water well No. 2 and suction pipe connection, to Ransome & Thiser, city, $3,680.

Lawton, Okla.—Dam on Medicine Creek, to E. R. Kerby, Lawton, 200 cu. yds. rock excavation, $3.50; 2,200 cu. yds. scabble masonry, $10; 4,000 cu. yds. rubble masonry, $8; 100 cu. yds. concrete, $7; 72 lin. ft. 24-in. steel pipe, $12; 40 lin. ft. 12-in. steel pipe, $7; 1 intake well complete, $5,400; total, $62,244; Squaw Creek improvements, to E. R. Kerby, 31,500 lin. ft. 6-in. c.-i. pipe, including specials, 80c.; 7,956 lin. ft. 8-in. c.-i. pipe, including specials, $1.10; 2,688 lin. ft. 10-in. c.-i. pipe, including specials, $1.40; total, including valves and hydrants, $39,403; North addition water works, 16,000 cu. yds. excavation, 30c.; 2,750 cu. yds. concrete, $8; 52,000 lbs. reinforcement bars, 4½c.; 48 tons bridge steel, $75; 110 squares No. 16 corrugated iron, $16; 6,500 lin. ft. 3-in. field tile, 20c.; 100 lin. ft. 10-in. vit. sewer pipe, 45c.; 15,750 lin. ft. 2-in. gas pipe railing, 20c.; 200 lin. ft. 48-in. double brick sewer, $4; total, $39,795; totals of other bids received on the above work: (a) dam on Medicine Crek, (b) Squaw Creek improvement, (c) North addition water works: L. B. Kinsey, Enid, Okla., (a) $51,108, (b) $38,347, (c) $49,163; Sherman Machinery Co., Oklahoma City, (a) $67,193, (b) $45,918, (c) $41,100; C. H. Shaw, city, (a) $46,935 (b) $39,403, (c) $39,795; Oklahoma Engineering Co., Anadarko, (a) $48,400, (b) $37,923, (c) $35 659.

Chambersburg, Pa.—Furnishing c.-i. pipe for Birch Run conduit, to U. S. C. I. Pipe Co., $24.47 per ton.

Waterloo, Wis.—Hydrants and valves, to Bourbon Copper and Brass Works Co., Cincinnati, O., $24.40 each for hydrants, $15.32 each for 6-in. gate valves and boxes, $21.12 for 8-in. and $29 for 10-in.; other bidders, R. D. Wood & Co., Philadelphia, $25, $15, $21 and $29, and J. B. Clow & Sons, Chicago, $28.90, $17, $24 and $32, respectively.

BIDS RECEIVED

Malden, Mass.—Furnishing 2,000 ft. of 10-in. drain pipe, 2,000 of 12-in. and 1,600 ft. of 15-in. pipe, Locke Coal Co., $75; Berry & Ferguson, $79; David W. Lewis Co., $79.25; Eastern Clay Goods Co., $76.10.

New York, N. Y.—Furnishing, delivering, erecting and connecting complete in place and ready for operation the necessary steam fittings and appurtenances, economizer breeching, boiler, feed pumps, feed water heaters, etc., and electric lighting equipment at the remodeled Ridgewood North Side pumping station, Atlantic ave., near Logan st., Borough of Brooklyn, James Curran Mfg. Co., 512 West 36th st., $39,978; E. Rutzler Co., $46,917; Lord Construction Co., $41,340.

Galveston, Tex.—Pipe for water main to be constructed from Galveston across bay to Pelican to supply immigration station, 1,570 ft. of 8-in. flexible joint pipe: Camden Iron Works, Philadelphia, $39 per ton; Dimmick Pipe Co., Birmingham, $55 per ton; 2,500 ft. of 8-in. bell and spigot pipe, Camden Iron Works, $26.50; Dimmick Pipe Co., $26; American Cast Iron Pipe Co., Birmingham, $25.50; 2,500 ft. of 8-in. flange pipe, Camden Iron Works, $38; fifteen 8-in. ball joints, Moran Flexible Steam Joint Co., Louisville, $55 each; American Cast Iron Co., $55; Camden Iron Works, $55, and Dimmick Pipe Co., $56.

LIGHTING AND POWER

Leeds, Ala.—Col. Cobb, of Anniston, is interested in proposed construction of electric light plant.

Troy, Ala.—City proposes to purchase two additional 250-kw or 300-kw, 2,300-volt, 60-cycle, 3-phase generators and engines and two 150-h.p. return tubular boilers, 150 lb. gauge pressure; also one 7-panel distributing switchboard for single-phase distribution from 3-phase generators, each panel to have 50 amperes.—A. B. Campbell, Superintendent.

Bisbee, Ariz.—The Bisbee Light & Power Co. is planning to enlarge capacity of its power plant and to construct electric transmission lines to several towns in this section.

Los Angeles, Cal.—Ordinances providing for issuance of $3,500,000 power bonds and $3,000,000 harbor bonds, in accordance with the bond election held April 19, have been passed by Council.

Oakland, Cal.—City Engineer Fred. C. Turner has petitioned Board of Public Works to bond the city for the construction of underground conduits.

Pasadena, Cal.—General Manager C. W. Koiner, of the municipal electric light plant, has asked loan of $15,000 for municipal light plant from general fund.

Ridgeway, Col.—Ridgeway Electric Co. has been incorporated with a capital of $20,000 to furnish the town with electric light and power.

Bridgeport, Conn.—Connecticut Co. is considering building addition to its present plant; fourth boiler will be added, and in the new engine room will be installed two steam turbine engines direct-connected to two 2,100-kw. generators.

Rehoboth, Del.—As both the Gas and Electric Light companies put in bids for lighting, Board of Commissioners will hold matter open to allow citizens to voice sentiments.

Washington, D. C.—An American Consul in northern Europe reports that plans are being prepared for enlargement of municipal electric-power plant which was constructed a year ago, at cost of $431,375; power is furnished by waterfalls 50 miles from city; plans provide for the eventual installation of machinery for generating 25,000 horsepower. Address No. 5442, Bureau of Manufactures.

Jacksonville, Fla.—Tentative plans for erection of a new electric light power station for the city have been discussed by Board of Bond Trustees; plant is to be erected on Talleyrand ave. and will represent expenditure of over $300,000; Scofield Engineering Co. of Philadelphia has made estimate covering cost of construction, including removal of machinery from the old plant to proposed structure.

Atlanta, Ga.—Detailed report of plans for electric and water plant at County Almshouse, submitted on request by P. H. Norcross, has been considered by County Commissioners; cost is estimated at between $17,000 and $20,000.

Covington, Ga.—Board of Water, Light and Power is considering installing new 125-kw. generator and switchboard as an extension of municipal plant, and prospects for day current are good.—J. R. Stephenson, Chairman; F. P. Haniso, Superintendent.

Sterling, Ill.—Sterling-Moline Traction Co. is planning construction of a power plant and dam on the Rock River at Lyndon.—A. Van Petten, General Manager.

Cambridge City, Ind.—Paul H. White, of Indianapolis, has been selected by the Town Trustees as supervising engineer of city electric light plant; plans and specifications will be prepared for proposed improvements.

Franklin, Ind.—Council is asking for bids for new heating plant in city hall.

Marion, Ind.—Council has purchased a site for municipal street lighting plant.

Parker City, Ind.—Town Council and Commercial Club are planning the establishment of lighting plant; it will be a municipal affair, but it is uncertain whether light will be electricity or acetylene.

Akron, Ia.—Construction of electric light plant is being considered.

Fairfield, Ia.—Council has selected Engineers John W. Alvord and Chas. B. Burdick, 140 Dearborn st., Chicago, to prepare plans for electric light plant.

Monticello, Ia.—Monticello Electric Light Co. will construct dam and power-house at Pictured Rocks, on Maquohets River.

Fort Scott, Kan.—Fort Scott Gas & Electric Company is soon to begin improvements over its electric system that will amount to $30,000; W. E. Cassell has completed plans.

Kansas City, Kan.—Emil Barth, Special Engineer, has filed estimate that it would cost city $350,000 to establish a municipal electric light and power plant, to run in connection with the municipal water works; sum covers the purchase price of all the outside equipment, poles, lines and service of the old light company and cost of putting up a new power house.

Maysville, Ky.—Council has passed ordinance ordering special election on proposition to issue $50,000 worth of bonds to build municipal electric light plant.

Springfield, Mass.—City is considering construction of $30,000 central heating plant.

Owosso, Mich.—Council will consider resolution providing that city establish electric lighting plant in connection with water works.

Eveleth, Minn.—Commercial Club last week after discussing proposed white way on Grant ave., has decided to ask Council to make a levy of $6,000 for that purpose.

Fairmont, Minn.—Citizens have voted $30,000 bonds to enlarge electric light plant.

Gilbert, Minn.—Electric light franchise will be granted to J. B. Thompson; $20,000 plant will be erected.

Cleveland, Miss.—Home Light & Ice Co. will install direct-connected 30-kw., 2,300-volt, 60-cycle engine and generator.—J. H. Fewell, Manager.

Kansas City, Mo.—Metropolitan Street Railway Co. will erect addition to lighting and heating plant in which to install three new boilers.—J. M. Egan, President.

Atlantic City, N. J.—Monmouth Shore Gas Co. of Atlantic Highlands has been incorporated, capital $250,000, by H. E. Woodman and Harry Stille to operate gas works.

Asheville, N. C.—Tri-County Public Service Corporation will furnish electricity for lighting and power.—R. S. Howland, President.

Wahpeton, N. D.—City is considering construction of a more modern street lighting system; plans include removing old system and erecting new posts, four on a block, each side, on which will be installed clusters of five tungsten lamps.

Hudson, O.—Plans have been completed for power house and sewage disposal plant to be erected by J. W. Ellsworth.—D. M. Hosford, Engineer.

Jackson, O.—Citizens' Saving & Trust Co., Jackson, has purchased $13,000 electric light bonds.

Mount Vernon, O.—Frank L. Packard Architect, New Haven Bldg., Columbus, is preparing plans for power house.

Henryetta, Okla.—Electric light franchise has been granted to B. T. Lilly and associates.

New Castle, Pa.—Council has appointed Messrs. Stritmater, Dunlap and Sukerbraum as committe to investigate and secure options upon suitable sites for proposed municipal electric light plant.

Comfort, Tex.—Steves & Stahmank, 7th & High sts., will install 8-hp. gasoline engine and electric generator for 25 fans.

Greenville, Tex.—Greenville Railway Co. will construct power house.—Albert Emmanuel, President.

Seattle, Wash.—Council is considering ordinance specifying and adopting system or plan for enlarging and extending municipal light plant, declaring estimated cost and submitting same to voters at special election on Nov. 8.

Regina, Sask., Can.—Extensions to light and power plant are being considered; City Electrician Bull has prepared a report.

CONTRACTS AWARDED

Clearwater, Fla.—To Cameron & Barkley Co., Tampa., Fla., for pumping equipment, consisting of two 25-hp. Foos special electric engines, direct connected to two 300-gal. per minute Rumsey triplex pumps.

Crookston, Minn.—Gas plant of Crookston Gas Co., to J. E. Johnson, $5,350.

Hibbing, Minn.—Installing exhaust steam mains, to A. C. Schirmer Co., Hibbing, lowest bidders, $5,251; work to begin at once.

Perry, N. Y.—Furnishing and erecting a 2,000,000-gal. cross compound crank and flywheel Corliss condensing pumping engine, to Laidlaw-Dunn-Gordon Co., Cincinnati, O.

Akron, O.—Council has rejected municipal light plan and will sign two-year contract with Northern Ohio Traction and Light Co.

BIDS RECEIVED

Indianapolis, Ind.—Vapor street lighting contract to end Nov. 1, 1912, American St. Lighting Co., Baltimore, Md., $28.46 a year for each light, and Sun Vapor Street Lighting Co., Canton, O., asking $28.32; when bids were received some time ago the Sun company was only bidder, $28.56.

Tacoma, Wash.—Construction of electric substation, Blows & Tuel, Tacoma, $103,874; estimate placed the cost at $104,000; other bidders, Huntington & Drack, Tacoma, $114,000, and the Sound Construction and Engineering Co., Seattle, $123,000.

FIRE EQUIPMENT

Stockton, Cal.—Election on $150,000 bonds for modern fire department is being urged.—M. McCann, Fire Chief.

Tampa, Fla.—Council will purchase site at Zack and Jefferson sts. for erection of fire house.

Tampa, Fla.—Plans are being prepared by Bonfoey & Elliott, for proposed No. 3 fire station; cost, $10,000.

Silver City, Ia.—Council has decided to purchase chemical fire extinguisher.

Boston, Mass.—Acting Fire Commissioner Francis M. Carroll has recommended following: Two first-size engines and three second-size engines, $27,500; one water tower, quick raising, $6,500; two auto chemicals, $11,000; three straight horse-drawn chemical engines, $6,000; three aerial trucks, $6,500; 10,000 ft. of hose, $9,000; 1,000 ft. of chemical hose, $500; one combination ladder truck, $2,500; harness, $1,000; machinery, $10,000; supplies, $5,000; incidentals, $10,000; one city truck, $2,500; one power boat for marine district chief, $2,500.

Ludlow, Mass.—Firemen desire auto truck and hose wagons instead of hose reels.

Springfield, Mass.—Next new fire apparatus will be heavy high-speed hose wagon to be propelled by electricity.

Grand Rapids, Mich.—Grandville Avenue Improvement Association is urging erection of fire house for Twelfth Ward.

Glenwood, Minn.—Town will erect fire house.—A. H. Foss, Elbow Lake, Architect.

Kansas City, Mo.—Kansas City Stock Yards Co. will erect building to be equipped and used by city for fire station.

Moorestown, N. J.—Sufficient funds have been obtained by Relief Engine Co. of Moorestown for its proposed $4,000 fire house, and bids are being asked.

Perth Amboy, N. J.—Site has been purchased on Lynde st. for erection of fire house for Liberty Hook and Ladder Co.

Albany, N. Y.—Plans have been prepared by Architect W. F. Van Guysling for erection of station house on N. Pearl st. for Third Precinct.

McVille, N. D.—Purchase of additional chemical engine is being considered.

Downingtown, Pa.—Alert Fire Co., No. 1, has decided to purchase uniforms for 50 new members.

Flourtown, Pa.—Committee has been appointed to purchase necessary apparatus for newly formed fire company.

Lebanon, Pa.—To Lebanon Utility Co., to install two fire alarm boxes and to repair system.

Scranton, Pa.—Erection of fire house in 13th Ward is being considered.

Stowe, Pa.—Fire house, cost $4,500, will be erected for West End Co.

Orange, Tex.—City will purchase hose wagon, chemical engine and additional ladders.

Pinner's Point, Va.—Improvement League has decided to purchase additional equipment for fire department.

Richmond, Va.—Plans are being prepared by Carneal & Johnson, Richmond, for $11,000 engine house at 10th and Bainbridge sts.

Spokane, Wash.—Board of Fire Underwriters has recommended that fire alarm headquarters be removed to fireproof building; that 3 rotary fire engines be replaced by modern reciprocating engines of 700-gal. capacity; installation of water towers; formation of hose company equipped with 1,500 ft. of hose and turret nozzle, and auxiliary company equipped wtih motor-propelled apparatus.

Spokane, Wash.—East Central Improvement Club will urge erection of fire house in vicinity of Mission ave. and Regal st.

Tacoma, Wash.—Municipal Commission has decided to call for bids for construction of wooden fire tug before making any effort to ascertain what sort of tug is best fitted for needs of city.

CONTRACTS AWARDED

Oakland, Cal.—Furnishing electrical equipment for new building of the Fire Alarm and Police Telegraph Department now being erected on 13th and Oak sts., to Gamewell Fire Alarm Telegraph Co.; cost, $12,805.

New Haven, Conn.—Building hose house on Lighthouse rd., Morris Cove, to Benson & Bromard.

Boise, Ida.—Two combination wagons for fire department, to Seagrave Co., Columbus, O., $3,300; also for 3,000 ft. of hose to Gorham Rubber Co., Seattle, 80c. per ft.

Rochester, N. Y.—Making repairs to Engine House 4, in South Ford st., to Fred Gleason, $2,674.

BIDS RECEIVED

Los Angeles, Cal.—Furnishing fire hose, Voorhees Rubber Mfg. Co., multiple woven, overall brand, $1 per ft.; double jacket, fire model, 90c.; double jacket, Eclipse, 85c.; the Republican Rubber Co., Republican brand, double jacket, $1.10 per ft. f.o.b. Los Angeles; L. A. special, double jacket, 95c.; Warren & Bailey Mfg. Co., Peerless Rubber Mfg. Co.'s "Royal" brand, double jacket, 90c. per ft. delivered within 60 days from date of execution of contract; Bowers Rubber Works, double jacket, Victor brand, 95c. per ft.; double jacket fire hose, 85c. per ft.; Gutta Percha and Rubber Mfg. Co., Baker fabric brand, multiple woven, $1.10 per ft., delivered engine house on Aliso st.; Boston Woven Hose and Rubber Co., by Union Well Supply Co., Bay State double jacket, 90c. per ft. f.o.b. engine house No. 4; L. A. Rubber Co., A1 double jacket, f.o.b. engine house No. 4, 75c. per ft.; American Rubber Mfg. Co., 5,000 ft. or less, 88c. per ft.; over 5,000 ft., 85½c. per ft.; Eureka Fire Hose Mfg. Co., 1 circular multiple woven fire, "Eureka" brand, $1.20 per ft.; "Paragon" brand, $1.10; "Red Cross" brand, $1; circular woven double jacket fire hose, "Monitor" brand, $1 per ft.; "Peerless" brand, 90c.—H. J. Lelande, City Clerk.

Boise, Ida.—Combination chemical wagons for the fire department, Pacific Supply Co., Seattle, $3,500; American-La France Co., Elmira, N. Y., $3,600; Robinson Fire Apparatus Co., St. Louis, $3,091 for steel body and $2,991 for wooden body, and Seagrave Co., Columbus, $3,300; bids in each instance are for two combination wagons; seven companies submitted bids for furnishing 3,000 ft. of hose, bids being for 20 different brands.

Albany, N. Y.—Building fire house at Delaware ave. and Marshall st., John Dyer, Jr., $32,685; Peter Keeler Building Co., $34,663; James J. Finn & Son, $33,500; Collins Bros., $34,750; Paul Cerutte & Sons Co., $36,638; M. L. Ryder Building Co., $34,878; John J. Kelly, $33,193; A. Pasquini, $33,788; Feeney & Sheehan Building Co., $33,900; Farrelly & Rigney, $39,500.

Lebanon, Pa.—Installation of two new fire alarm boxes and repair of alarm system, Gamewell Alarm Co., box only, $125; Lebanon Utility Co., $238.55; Lebanon Electric Co., $254.65.

BRIDGES

Oakland, Cal.—Resolution has been adopted authorizing City Engineer to prepare plans for that portion of Bridge ave. culvert to be built by city.

Hartford, Conn.—Park Commissioners are considering erection of foot bridge over Park River at Riverside st.

Indianapolis, Ind.—Board of Park Commissioners will build new bridge across Fall Creek at Capital ave.—Dr. Henry Jamison, President.

Vincennes, Ind.—Free wagon bridge over White River, near Edwardsport, linking the counties of Knox and Daviess together is now an assured fact.

Flint, Mich.—City proposes to construct bridge over Flint River; cost $7,000.—H. E. Terry, City Engineer.

Kalamazoo, Mich.—City will let contract for construction of a 2 or 3-span reinforced concrete arch on Gull and Mill sts. this fall.—H. A. Johnson, City Engineer.

Hackensack, N. J.—Freeholders have granted Hudson River Bridge Commission $3,000 of the $5,000 appropriated for purpose of making borings to find most suitable place for construction of a bridge to span Hudson River and join New York and New Jersey.

Trenton, N. J.—Council has passed ordinance directing Trenton Water Power Co. to repair all its bridges.

Vincentown, N. J.—Bids will be asked by Board of Freeholders for repairing bridge.

La Salle, N. Y.—Citizens have defeated proposition to build bridge over Cayuga Creek for $3,000.

Martins Ferry, O.—Plans have been completed by Arthur Dickson, County Surveyor, for constructing various bridges throughout county.

Portland, Ore.—City Engineer has estimated cost of bridge across river from Division st. to Sherman, at $1,950,000, and for Umatilla ave. Bridge, from Umatilla or Douglas ave., to west side of the river, at $875,000.

Portland, Ore.—Ladd & Dillon have purchased $50,000 Broadway bridge bonds.

Chambersburg, Pa.—Plans have been prepared for foot bridges for King st. creek bridge, and for 5th ave. Falling Spring bridge, and for one over run on Hood st.

Pittsburg, Pa.—Citizens will vote on $850,000 bonds for bridges at Sylvan ave. and over Haights run, and for sewers in four streets; $940,000 for Point bridge; $30,000 for Everett st. bridge; $75,000 for Beechview bridge, and $500,000 for Bloomfield bridge.

York, Pa.—County Commissioners have decided to build concrete bridge across Muddy Creek Forks at Brogueville station; bids will be asked as soon as plans can be prepared.

Tacoma, Wash.—City Commission proposes to submit following bond issues at special election within 30 days: $481,000 for new bridge over city water way on 11th st.; $140,000 for bridge on Puyallup River; $385,000 for municipal dock, and $125,000 for fire tug.

Tacoma, Wash.—J. A. L. Waddell, of Waddell & Harrington, Consulting Engineers, has sent communication to Municipal Commission naming price for expert advice he is to give the city in the construction of the city waterway bridge and the proposed new structure over the Puyallup waterway; he will prepare plans, superintend the construction and inspect the work for 5 per cent of the cost of both bridges, which amounts to $621,000.

Janesville, Wis.—Citizens have voted $60,000 bonds to build two bridges across Rock River.

CONTRACTS AWARDED

Hayward, Cal.—Widening bridge over San Lorenzo Creek, to Thos. B. Russell, $6 585.

Des Moines, Ia.—Building 6-span concrete bridge over Des Moines River on Walnut st., to John Wheeler Construction Co., Geneva, Ill., $169,661.

Louisville, Ky.—Building three reinforced concrete bridges and two drop flumes over ditch that is now being cut, to C. H. Dishman, $8,333.

Conklin, N. Y.—By Town Boards of Conklin and Kirkwood, for construction of iron bridge between the two towns, to Owego Bridge Co., $5,400; also for raising piers of bridge 2 ft., $1,400.

York, Pa.—Encasing bridge across Codorus Creek at College ave. in concrete, using steel structural work for reinforcement, to the Hartley Ziegler Co., city, $23,278.

BIDS RECEIVED

Los Angeles, Cal.—Constructing pile trestle bridge over the San Gabriel River on the Rivera-Los Metos road, G. M. Atkins, 1326 Winfield st., $4,500, and the Mercereau Bridge and Construction Co., $4,625.

MISCELLANEOUS

Los Angeles, Cal.—Park Commission has set aside $10,000 for use of Commissioner J. B. Lippincott in carrying out his plans for development of Griffith Park.

Key West, Fla.—Councilman Curry has proposed plan for building 200-ft. wharf at foot of White st. on which trash of city could be burned.

Ocala, Fla.—County Commissioners have ordered plans for erection of $40.000 jail.

Atlanta, Ga.—Resolution has been adopted by Council requesting Board of Health to experiment with types of wagons for emptying of night soil into trunk sewers.

Macon, Ga.—Contract will soon be awarded by Bridges Smith, Clerk of Council, for erection of proposed exhibit hall at Central City Park.

Chicago, Ill.—Trustees of the Sanitary District of Chicago have directed Chief Engineer George M. Wisner to prepare plans and estimates of cost of a suitable harbor for the Chicago lake front, including docks, warehouse, railroad facilities and loading machinery, plans to be completed by Dec. 1.

Indianapolis, Ind.—Councilman Geo. L. Denny is urging erection of municipal garage.

Vincennes, Ind.—County Council has appropriated $50,000 for erection of a soldiers' and sailors' monument in Courthouse sq.

Lexington, Ky.—Bids will be advertised for franchise giving right to collect dead animals within limits of city.

Louisville, Ky.—Hospital Commission has recommended erection of larger building.

Havre de Grace, Md.—City is planning erection of hospital.—J. Lee Hopkins, Isaac Hecht and Lee M. Moore, Committee.

Cadillac, Mich.—Council has ordered issue of $10,000 city bonds for purpose of purchasing site for a new county building in city; Board of Supervisors will submit to the electorate of the county proposition for bonding county for $50,000 for the erection of building.

Omaha, Neb.—Chiefs of the fire and police departments are preparing specifications for new style of garments that are to be worn by the members of the two departments next spring; specifications will be submitted to the bidders in a short time.

Omaha, Neb.—If plans of Health Commissioner R. W. Connell and Police Surgeon R. B. Harris carry, city will have special police station hospital and surgical rooms before another year has passed.

Roselle, N. J.—Architect W. G. Lawrence has completed plans for erection of proposed borough hall.

Trenton, N. J.—City Engineer Abram Swan is urging purchase of auto for his department.

Trenton, N. J.—Council has passed ordinance authorizing the issue of $16 500 bonds for laying of sidewalks, building comfort stations, connecting sewers, grading, and other improvements at Cadwalader Park.

Ithaca, N. Y.—City Hospital will be erected at cost of $50,000.—Jacob Rothschild, President Board of Hospital Trustees.

Durant, Okla.—Bryan County will vote Nov. 8 on $160,000 bonds to erect court house and jail.

Springfield, Ore.—Citizens have voted $50.000 bonds for public improvements and to refund outstanding warrants.

Pittsburg, Pa.—Citizens will vote in November on following bonds: $800,000 for playgrounds, $20,000 for parks, $250,000 for tuberculosis hospital, $100,000 for rubbish plant, $100,000 for wharves, and $1,500,000 for city hall.

Vandergrift, Pa.—Borough Council has decided to construct garbage crematory; cost about $7,000.

Marshall, Tex.—City has decided to build abattoir similar to one in Paris.

Puyallup, Wash.—Election on $10,000 bonds for erection of city hall has been postponed.

Tacoma, Wash.—Municipal Commission proposes to call election on $385,000 bond issue for municipal dock.

Moundsville, W. Va.—Council is having plans prepared by Herman Hess for proposed municipal building.

Green Bay, Wis.—Alderman Farrell, of the Finance Committee, has been instructed to get figures for police patrol system for the city; Council is considering buying automobile police patrol and ambulance also.

CONTRACTS AWARDED

Pensacola, Fla.—Removal of city garbage to J. A. Daw, $600 per month.

Peru, Neb.—To the Miracle Pressed Stone Co., for new jail.

BIDS RECEIVED

Hartford, Conn.—Construction work for proposed Children's Infirmary on Holcombe st., Adam Purves, city, $16,164 on entire construction work, including mason and carpenter work, painting, plumbing work, steam heating work and electrical work; other bids on the entire construction work were: Robert A. McKone, $17,850; F. D. Kent, $16,594; A. A. Shaw, $17,667.

Boston, Mass.—Constructing pier at South Boston for accommodation of fish business: Holbrook, Cabot & Rollins, city, $760,000; William L. Miller, city, $780,900; Roy H. Beattie, Inc., and John Cashman & Sons Co., city, $797,000; Patrick McGovern, city, $835,000; Metropolitan Contracting Co., city, $855,000; Ryan-Parker Construction Co., New York, $941,000; Thomas Fitzgibbons & Co., Beverly, $960,000; Luke D. Mellen, city, $1,190,000; Hugh Nawn Contracting Co., city, $1,300,000; P. J. Carlin Construction Co., New York, $1,395,000; S. Pearson & Sons, Inc., New York, $1,445,200.

Saginaw, Mich.—Building tuberculosis hospital, Leidlein & Steele, low bidder, $3,575; Fred Bluhm, $3,866.

Providence, R. I.—Construction of men's comfort station at South Park, Mitchell Nicholson, $4,798; C. F. Grinnell & Co., $4,750; Puleston & McDougall, $4,685; William A. Borden, $4,512.

TOO LATE FOR CLASSIFICATION

STREET IMPROVEMENTS

Haywards, Cal.—Plans and specifications have been adopted for paving of about 5 miles of streets with asphalt macadam; cost about $250,000.

San Francisco, Cal.—Board of City Supervisors has passed resolution for repaving Mission st.; cost, $11,000.

New Haven, Conn.—Permanent Paving Commission is considering paving of Church st. with wood block.

Washington, D. C.—An American consul in Canada reports that considerable street paving is to be done in one of the cities in the near future; tenders will be called for for doing the whole work or providing the necessary material. The board has recommended a 4-in. concrete base and the paving material to be vitrified brick, sandstone or granite blocks, the estimated cost being $2.55, $2.05, and $2.10 per sq. yd., respectively. Address No. 5487, Bureau of Manufactures.

Jacksonville, Fla.—Councilman Brickwedel has introduced resolution requiring that appropriation be placed in budget of 1910 for laying cement walks in and around Hemming park in place of brick and shell walks now in use.

St. Augustine, Fla.—County Commissioners have declared proposed road from Elkton to St. Augustine a public road and ordered bids be received at next meeting for the clearing and grading of remainder of road not yet opened up.

Evansville, Ind.—Order for improvement of Seventh st. from Sycamore st. to Ingle st. and from Locust st. to Walnut st. has been confirmed by Board of Works.

English, Ind.—Rock road bonds, $2,200, for Whisky Run Township, Crawford County, have been purchased by the First National Bank, Milltown, Ind.

Kendallville, Ind.—City is considering paving 6 blocks on Main st. this fall.—W. P. Myers, City Clerk.

Muncie, Ind.—Delaware County Council has appropriated $25,000 for repairing free gravel roads.

Flint, Mich.—Paving bonds amounting to $76,699 have been sold.

Cloquet, Minn.—Bids for building state road between Cloquet and Carlton have been all rejected, being considered too high, and the work will consequently be delayed; lowest bid for complete job was $10,660.

Fertile, Minn.—Village Council has ordered construction of new sidewalks.

Willmar, Minn.—Council has ordered construction of cement sidewalks.

Culbertson, Mont.—Council has ordered construction of 3 blocks of cement sidewalks.

Cleveland, O.—Council has decided to improve Hampton ave., N. E. and nine other streets.—N. F. Walker, President.

Mansfield, O.—Council has adopted resolution directing Service Department to have prepared plans and estimates of cost of improving Home ave. with brick or block and building sidewalks.

College Hill, Pa.—Citizens are considering election on bonds for paving and improving streets.

Mt. Carbon, Pa.—No bids were received by State Highway Department for improvement of 1,350 ft. of brick street.

Norristown, Pa.—Jury consisting of Thomas S. Gillin, Davis Sill and Jacob T. Comly has decided to open a road in Cheltenham township from the Oak Lane Station to Elkins Park Station.

Aitken, S. C.—Paving of Main st. is being considered.

San Angelo, Tex.—Mayor J. D. Hassell will urge the calling of election on $20.000 bonds to be used in paying city's part of paving three blocks of Chadbourne st.

Stamford, Tex.—Precinct No. 2, Jones County, will vote on $125,000 bonds for permanent roads.

Seattle, Wash.—Council has passed resolutions to make following improvements: Alley in block 10, Bell & Denny's addition, grading, etc.; Beacon ave. et al., paving, etc.; 42d ave. South et al., grading, etc., Conover way et al., grading, etc.; 42d ave. South et al., grading, etc.; Fifth and One-Half ave., grading, etc.; Alley in block 42, D. S. Maynard's Plat., paving, etc.; 6th ave. South et al., replanking.

Regina, Sask., Can.—Citizens have voted $132,000 bonds for paving and $59,000 for sidewalks.

CONTRACTS AWARDED

Carterville, Ill.—Constructing 18 miles of concrete sidewalks to Wm. Lough & Son, $38,374.

Highland Park, Ill.—To Stevens Constr. Co. for paving streets in Ridgewood Park Subdivision, $14,610.

Muncie, Ind.—Paving Wysor st. to the Whitely bridge with brick to Philip Freshwater & Sons, of Cleveland, O., $21,300; Ohio firm sublet work to the firm of Daniels & Lyst of Anderson, and improvement will be made by the latter firm.

Salem, Ind.—Constructing the Highland and Rinkers Creek road to Bert & Fred Simpson, Smedley, $8,228.

Schenectady, N. Y.—Grading Elder st. to Muller Bros., 34½c.

Dayton, O.—Paving: Monument st., brick and straight cement curbing to J. O. Shoup Co., $26,146; Germantown, with curb and gutter of cement to J. E. Conley, $8,614.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
			STREET IMPROVEMENTS	
Massachusetts...	Boston.....	Sept. 16, noon.....	Asphalt paving and regulating Kingston st., city proper.....	Louis K. Rourke, Supt. of Streets.
Pennsylvania...	Arnold.....	Sept. 19, 8 p.m.....	Grading, combined cement curb and gutter, Sixth ave., & 2 sts.	P. J. Jacobus, Chm. Street Com.
Minnesota.....	Cloquet.....	Sept. 19, 8 p.m.....	Furn. material and bldg. cement sidewalks and crosswalks.....	J. A. E. Grenier, City Clerk.
Virginia.....	Norfolk.....	Sept. 19.....	Bldg. 3 miles macadam road on Cottage Toll road to Ocean View	Permanent Road Imp. Com. of Co.
Illinois.....	Moline.....	Oct. 1, noon.....	Grading, etc., Coal Valley road, Sec. 1, 34,360 cu. yds. excav.; Sec. 2, 27,465 cu. yds. excav., average haul, 50 to 1,000 ft...	Clark G. Anderson, Civil Engr.
Indiana.....	Vincennes.....	Oct. 4, 2 p.m.....	Bldg. 4 gravel roads: 5,407.3; 6,198; 8,085 and 4,776.5 ft. long.	John T. Scott, County Auditor.
Indiana.....	Spencer.....	Oct. 4.....	Bldg. free macadamized road, 10,962 ft. long, Washtn. twp.....	George W. Edwards, County Aud.
Florida.....	St. Augustine....	Oct. 4, 10 a.m.....	Constructing public highway, C. M. Milburn, Engr., C. Co. Clk.	B. Genovar, Chm. Co. Comrs.
			SEWERAGE	
Oklahoma.....	Muskogee.....	Sept. 19, 8 p.m.....	Constructing sewers in Dists. 39 and 40.....	Charles Wheeler, Jr., City Clerk.
Oklahoma.....	Oklahoma City..	Sept. 19, 5 p.m.....	Bldg. main storm sewer in 21st st., and Santa Fe right-of-way..	Bob Parman, City Clerk.
Minnesota.....	Hastings.....	Sept. 26.....	Bldg. water mains and sewers in 6th, 7th, Pine and 2d sts.....	J. H. Twichell, City Clerk.
Pennsylvania...	West View.....	Oct. 1, noon.....	Bldg. main sewers and disposal plant, Trimble & Miller, Engrs.	H. L. Donaldson, Borough Sec'y.
Minnesota.....	Pipestone.....	Oct. 3, 8 p.m.....	Bldg. sewers, Dists. 8, 15 and 16, sep. bids: 356.5 ft., 743 ft. and 937 ft., 8-in. pipe, 8-12 ft. deep, manhole, lamphole, etc.	S. W. Funk, City Recorder.
			WATER SUPPLY	
Indiana.....	Connersville.....	Sept. 19, 2 p.m.....	Bldg. complete pumping station, etc., reservoir, drilling wells, laying pipe, specials, etc., furn. vert. motors, elec. centrifugal unit with surface condenser, etc.; tubular boilers, remove old machinery, etc., cost $34,000, J.B. Marvin, C. E. Frankfort.	William, Reeder, City Clerk.
Dist. of Col'bia.	Washington.....	Sept. 22, 2 p.m.....	Furnishing fire hydrants for District.....	C. H. Rudolph, Chm. Dist. Comrs.
Pennsylvania...	Harrisburg.....	Sept. 22, 4 p.m.....	Bldg. 1,000,000-gal. rein. concrete reservoir in Reservoir Park.	John Affleck, Water Board.
Minnesota.....	Hastings.....	Sept. 26.....	Constructing sewers and water mains in 2d, 6th, 7th and Pine sts.	J. H. Twichell, City Clerk.
Kentucky.....	Louisville.....	Sept. 27, 11 a.m.....	Intake and screen tower; $2,000 check; $20,000 bond.....	Theo. A. Leisen, Ch. Engr. Water Co
Florida.....	Jacksonville.....	Oct. 4.....	Bldg. 3,000,000-gal. covered rein. concrete reservoir.....	R. N. Ellis, Supt. Water Works.
Florida.....	Lakeland.....	Nov. 1.....	Improvements to water and light plant, estimated cost, $40,000	H. L. Swatts, City Clerk.
			BRIDGES	
Pennsylvania...	New Castle.....	Sept. 29.....	Bldg superstructure of plate girder bridge, 40x16-ft.....	Thomas A. Gilkey, County Engr.
			LIGHTING AND POWER	
Massachusetts...	Boston.....	Sept. 19, noon.....	Furnishing electrical fixtures for new library at Jamaica Plain..	M. J. Fish, Supt. Pub. Bldgs.
Montana.....	Missoula.....	Nov. 20.....	Constr. $445,000 power plant on Rock Creek at Stevensville..	E. S. Dorman, Ch. Engr., R. C. Power Company.
Flordia.....	Lakeland.....	Nov. 1.....	Improvements to light and water plant; cost $40,000.....	H. L. Swatts, City Clerk.
			MISCELLANEOUS	
Kentucky.....	Louisville.....	Sept. 20, 10 a.m.....	Excavating Pond Creek ditch, Sta. 250 to 450; $25,000 available.	H. D. Robb, Chm. Drainage Com.
New York.....	Albany.....	Oct. 3, 3 p.m.....	Bldg. Third Precinct Police Station, W H. Van Guysling, Arch.	I. Wachsman, Sec'y. Bd. C. & Sup.

Springfield, O.—To Edward Ryan for paving E. High st. and College ave., $24,878.25 and $11,166.78 respectively; Trinidad Lake asphalt will be used with Nelsonville block between car tracks set in asphalt filler.

Youngstown, O.—Grading hills on the Canfield-Ellsworth road in Ellsworth township to Geo. W. Ripple, 10,000 yds. at 23½c.; other bidders: L. H. Young, 27c.; L. W. Coy, 32c.; E. Winings, 36c.; J. S. Wilson, 29c.; F. C. Allen, 23⅞c.; G. A. Gialdine, 50c.

Nether Providence, Pa.—Township Commissioners have awarded the contract for surfacing with tarvia Providence road from above Wallingford to foot of Allen's hill to D. E. O'Connell & Sons, Avondale.

Seattle, Wash.—Dearborn st. et al., paving, to Baroer Asphalt Paving Co., for $16,680.40; Alley in block 42, A. A. Denny's addition, paving, to J. G. Peirce, for $2,581.40; First ave. N. et al., concrete walks, etc., to N. D. Johnson for $10,026.85, providing for wooden stairway and wooden railing.

Waukesha, Wis.—Improvement of North st. and West ave. to G. H. Stanchfield, Fond du Lac, $13,572; work consists of $3,076 cu. yd. excav., 6,632 lin. ft. concrete curb and gutter and 12,142 sq. yd. tar macadam.

BIDS RECEIVED

Buffalo, N. Y.—Paving, as follows: (a) Barton st., (b) Ledger st., (c) Princton pl., (d) Rano st., (e) Republic st., (f) Vandalia st.: German Rock, Asphalt & Cement Co., D. S. Morgan Bldg., (a) asphalt $6,290, (b) asphalt $6,648, (c) with asphalt $6,420, (e) with asphalt $12,920, (f) Medina sandstone, $4,970; H. P. Burgard, 275 Lathrop st., with brick, (a) $5,000, (c) brick $5,100, (d) brick $3,800, (e) brick $11,000, (f) asphalt $4,000 and brick $3,000; Constantine Constr. Co., (b) brick $5,300.

Lancaster, Pa.—Constructing about 10,802 ft. of road in Salisbury Township, Lancaster County, and the following are the bids received on local limestone top, with local stone or limestone bottom; Ambler Davis Co., Phila., $24,527; Juanita Paving Co., Phila., $26,488; Jos. Christiana, Shamokin, $26,971; Thos. Meehan & Sons, Mt. Airy, Phila., $28,846; Wm. McClellan, Strafford, $26,708, and Fogel & Co., Hollidaysburg, $22,215; same contractors submitted bids on other materials.

Dallas, Tex.—Paving Main st. and Market st.: D. J. Grigsby and the Texas Bitulithic Co. bid on all and the Municipal Paving Co. on Market st.; bids specify figures for removing bois d'arc blocks, curbing of various sorts, guttering, oak headers and other detailed portions of the work; Grigsby bid on Buffalo Coffeyville vitrified brick, $2.75 and $3.35 on creosoted pine blocks; Bitulithic Co., $2.73 on vitrified brick or $2.85 with five-year guarantee, $3.34 and $3.49 on creosoted pine blocks with and without guarantee of five years and $2.32 on bitulithic, or $2.40 with five-year guarantee; Market st. Grigsby bid was $2.65 on vitrified brick or $2.85 with guarantee for five years, and $3.40 and $3.60 on creosoted pine blocks.

SEWERAGE

Flora, Ill.—Bids will be received this fall for $20,000 sewer system.—C. S. Cunningham, Chairman Board of Local Improvements; J. S. Spiker, Court House, Vincennes, Ind., Engineer.

Evansville, Ind.—Board of Works has ordered construction of sewers on Hopkins ave.

Northampton, Mass.—Sewer Commissioners have decided to construct 6,000 ft. sewers, 10-in...pipe with 20 manholes.

Cassopolis, Mich.—Construction of sewer system is being considered.

Virginia, Minn.—Plans will be prepared for sanitary sewer on Larch and Sage sts.

Syracuse, N. Y.—New sewer system to be constructed in Sunset ave. and other streets in First Ward will cost $21,500, according to estimate prepared by City Engineer H. C. Allen.

Portsmouth, O.—City has sold $6,000 sewer construction bonds to the Security Savings Bank and Trust Co., Portsmouth.

Upper Sandusky, O.—Council has sold $5,000 sewer bonds to Hayden, Miller & Co., Cleveland; premium $495.

Pawtucket, R. I.—Board of Aldermen has passed resolution appropriating $3,400 for sewer in Blodgett ave.

Madison, S. D.—Installation of sewer system is being considered.

Jellico, Tenn.—Citizens have voted $90,000 sewerage and water works bonds.

Oconto, Wis.—Council is considering ordinance providing for sewers on Main and other streets.

CONTRACTS AWARDED

Centreville, Ind.—To Hayman Construction Co., to build sewerage system, $8,612.46.

Schenectady, N. Y.—Building water sewer in Boulevard to W. D. Goodale, 147 Jay st., $24,260.20; other bidders: John Allen, $25,741; T. R. Crane, $29,704; Kellam & Shafer Co., $30,589; Golden & Lansing, $36,801; Joseph H. Clements, $36,811; Brown & Lowe, $45,947.

Dallas, Tex.—Sewer on Lamar st. from Main to Elm to Dallas Home Improvement Co., $1,324.50; lowest bid; bid of $3,771.83 for pipe, made by Kinnison Bros., also lowest bid offered, was also accepted.

BIDS RECEIVED

Schenectady, N. Y.—Building surface water mains on the boulevard: W. D. Goodale, 147 Jay St., lowest bidder: Excavation for concrete sewer less than 6 ft., 80c.; 6 to 8 ft., $1.25; 8 to 10 ft., $1.75; 10 to 12 ft., $2.50; 12 to 14 ft., $3.00; 14 to 16 ft., $3.75; 16 to 18 ft., $4.75; 18 to 20 ft., $5.75; excavation for tile sewer under 6 ft., 50c.; 6 to 8 ft., 75c.; 8 to 10 ft., $1.25; 10 to 12 ft., $1.50; 12 to 14 ft., $2.00; 14 to 16 ft., $2.50; 16 to 18 ft., $3.05; 18 to 20 ft., $4.00; 600 cu. yds. rock, $2.50; 640 lin. ft. asphalt repaving, $2.93; 1,100 lin. ft. concrete sewer, $8.50; 1,600 lin. ft. 36-in. terra cotta pipe, $3.25; 10 cu. yds. extra concrete, $7.50; 1 manhole, No. 1, $225.00; 1 manhole, No. 2, $110.00; 2 manholes, No. 3, $40.00; 1 screen chamber, $25.00.

WATER SUPPLY

Covina, Cal.—Board of Trustees will consider installation of water system.

Flora, Ill.—Bids will be received this fall for constructing system of water works; work consists of brick pumping station, steam turbine pumps or equal, 600 gal. cap.; air lifts; steel water tower, 138 ft. high.—J. S. Spiker, Court House, Vincennes, Ind., Engineer; C. S. Cunningham, Chairman Board of Local Improvements.

Highland Park, Mich.—Citizens have voted $31,000 bonds for water works extension.

Anoka, Minn.—Citizens will vote Sept. 20 on $8,000 bonds for improvement of water works and electric light plant.

Crosby, Minn.—Franchise has been granted to H. F. Pierce, of Bay City, Mich., for the installation of water and electric light plant; work will be commenced at once.

Akron, O.—Citizens will vote Oct. 25 on $750,000 bonds to build water works plant.

Lansdale, Pa.—Lansdale Water Co. is planning to expend about $12,500 in improving plant.

Jellico, Tenn.—Citizens have voted $90,000 water works and sewerage bonds.

Flatonia, Tex.—Contract for water works will be let in spring.—T. M. Spanks is interested.

Fort Worth, Tex.—City will install steel water tower at corner of Commerce and Twenty-first sts., North Fort Worth, at cost of $9,000; capacity, 333,000 gallons.

Layton, Utah.—Water system will be installed at cost of $12,000.—J. M. Smith, Chairman, Citizens Committee.

Spokane, Wash.—Board of Public Works has been authorized to construct steel mains in the East Lidgerwood and Cannondale additions; cost about $80,000.

CONTRACTS AWARDED

Rushville, Ind.—Pumping machinery, tank and tower, to Latt-Martin Pump Co., Cincinnati, O.

Eveleth, Minn.—Laying new water pipes in Central Division No. 2 to the Pastoret

& Lawrence Co., $9,000; work will be commenced very soon.

Albany, N. Y.—By E. C. Stevens, State Superintendent of Public Works, to Buffalo Dredging Co., Buffalo, $963,415, for construction of reservoir and dam on West Canada Creek at Hinckley.

Saskatoon, Sask., Can.—To Harry Welch, for laying water mains and sewer pipe, $1,045, or $2.90 per lin. ft.

LIGHTING AND POWER

Cadiz, Ky.—Alexander Bros. Co. has secured electric light franchise; plant will soon be constructed.

Sodus, N. Y.—Sodus Gas & Electric Light Co. has decided to extend lines of company to Pultenyville from Williamson; distance about four miles.

New London, O.—Installation of more boilers in municipal electric light plant is being considered.—W. B. Newkirk, Chief Engineer.

Collegeville, Pa.—Ordinance granting franchise to the Collegeville Electric Light, Heat and Power Co. has passed final reading of Council. Address Burgess Fetterolf.

La Crosse, Wis.—Committee on Lighting has decided on the "great white way" system of lighting downtown district.

FIRE EQUIPMENT

Birmingham, Ala.—Paid fire department will be established in Pratt City; erection of fire house in Eleventh Ward is being considered.

Lowell, Mass.—Fire Committee is considering purchase of two combination wagons and chief's wagon, all autos.—Alderman Adams, Chairman.

Atlantic City, N. J.—Erection of fire house at Atlantic and California aves. is being considered.

Defiance, O.—Council has decided to appropriate $500 for purchase of additional fire hose.

College Hill, Pa.—Citizens are considering election on bonds for fire protection.

Palestine, Tex.—Citizens have voted $9,000 bonds for fire equipment.

Reading, Pa.—Council will consider purchase of combination hose and chemical auto.

Baraboo, Wis.—Fire Chief W. T. Power has recommended purchase of coats, boots and helmets.

BRIDGES

Muncie, Ind.—Delaware County Council has made following appropriations for new bridges: Lesh bridge, Liberty township, $6,500; over Buck Creek, on South Walnut, $4,000; Moody, Liberty township, $265; Stafford, Union, $385; Jernegan, Niles township, $235; on Smithfield pike, $225; bridge repairs, $3,000.

Hazleton, Pa.—New bids will be asked for erection of river bridge between Plymouth and Breslau.

Seattle, Wash.—Council is considering ordinance authorizing Board of Public Works to construct drawbridge across west waterway at Spokane st.

CONTRACT AWARDED

Yukon, Pa.—Constructing reinforced concrete bridge across Sewickley Creek at Yukon to Barnes & Senft, Ligonier, $6,965.

MISCELLANEOUS

Chicago, Ill.—Plans have been prepared for erection of $3,000,000 county hospital.—Holabird & Roche, Architects.

Jersey City, N. J.—Street and Water Board has adopted garbage collecting specifications for fiscal year beginning Dec. 1 next, and will receive bids under those specifications probably in October or November.

Youngstown, O.—Councilman Fred Werner and Jerry Sullivan are urging $50,000 bond issue for city parks.

Youngstown, O.—Bids will be readvertised for erection of two comfort stations.

Seattle, Wash.—Council is considering calling election Nov. 8 on $1,000,000 bonds for construction of city hall.

Monroe, Wis.—City Clerk Dunwiddie has been instructed by Council to advertise for bids for installing of heating plant and otherwise improving city hall and the fire station building.

BIDS RECEIVED

Boston, Mass.—Bids were opened Sept. 2 by the Harbor and Land Commissioners for construction of about 120 lin. ft. of concrete sea wall, 9 concrete spur jetties each about 25 ft. long and underpinning about 250 ft. of existing wall at North Scituate Beach (price given per cu. yd.): Wm. H. Connor, Middleboro, $5.95; Michael Hannigan, Hingham, $6.98; Rendle & Stoddard, E. Boston, $8; George T. Rendle, Boston, $8.80; Smith, Alden & Co., Boston, $8.84.

PROPOSALS

WATER WORKS

Roslyn, N. Y.

Sealed proposals will be received by the Board of Water Commissioners, Roslyn, N. Y., until 11 o'clock A. M., Sept. 19th, 1910, and then publicly opened and read.

Work will embrace furnishing approximately 1,600 Tons of Cast Iron Pipe, 40 Tons of special castings, 125 Fire Hydrants, 148 Valves and boxes, Brick and concrete pumping station, 2 Triplex Pumps and 2 50-H.P. Gas Engines with Gas Producers, and laying about 14 miles of pipe.

Plans and specifications will be on file and may be obtained from the engineer, on receipt of five ($5.00) dollars, or may be seen at the office of the engineer.

Specifications will be on file and may be obtained from the engineer.

All inquiries must be addressed to the engineer.

All bids must be accompanied by a certified check or its equivalent for not less than 5% of the total amount of the bid.

The right is reserved to reject any or all bids, or to accept any bid, or bids, or any portion of any bid.

BOARD OF WATER COMMISSIONERS,
J. F. REMSEN, Chairman,
RALPH TUBBY,
THOMAS FAGAN.

ENGINEER:
WALTER E. SEXTON,
(2t) Mineola, N. Y.

PUMPING ENGINES

Evansville, Indiana.

Sealed bids will be received by the City of Evansville, up to 10 A. M., Thursday, September 29th, 1910, at the Water Office in the City Hall, Evansville, Indiana, for furnishing and erecting two (2) steam driven pumps, or pumping engines, for supplying water to the filtration plant of the city water works.

Each engine shall have a capacity of twelve (12) million gallons per twenty-four hours against a total lift varying from 13 feet to 62 feet, including suction and discharge heads and friction.

The pumps must be accommodated in a portion of a masonry pit about 52 feet in diameter by 61 feet deep.

The machinery is preferred having steam ends at top of pit.

Bids are requested on all types of pumping apparatus adapted to the conditions, including centrifugal and plunger pumps.

Specifications may be secured by application to the engineers.

The right is reserved to reject any or all bids.

BOARD OF WATER COMMISSIONERS,
Henry L. Heilman, Secy.
JOHN W. ALVORD,
CHAS. B. BURDICK,
Engineers, Chicago.

FIRE HYDRANTS

Office of the Commissioners,
Washington, D. C., Sept. 8, 1910.

Sealed proposals will be received at this office until 2 o'clock P. M., September 22, 1910, for furnishing fire hydrants. Blank forms of proposal, specifications and all necessary information may be obtained from the Chief Clerk, Engineer Department, Room 427, District Building, Washington, D. C.

CUNO H. RUDOLPH,
JOHN A. JOHNSTON,
WILLIAM V. JUDSON,
Commissioners D. C.

DISPOSAL OF REFUSE

Boston, Mass.

The Superintendent of Streets of the City of Boston, office 47, City Hall, invites proposals for the disposal of refuse for a term of 10 years from January 1, 1912, and giving bond therefor of a surety company approved by the superintendent. The proposals can be obtained at said office on and after September 1, 1910, and must be filled out, signed by the bidder and left at said office before 12 o'clock M., of Monday, October 17, 1910, with a certified check for five thousand dollars ($5,000), payable to and to be the property of the city if the proposal after acceptance is not carried out, and will at said hour and place be publicly opened and read. Proposals must be made in duplicate, the duplicate, without check, to be deposited by the bidder with the City Auditor previous to the time named for opening the bids. The undersigned reserves the right to give preference to the proposals of bidders agreeing to pay the trade union's rate of wages and the right to reject any or all proposals. The proposals should be inclosed in an envelope, sealed, and marked "Proposal for Disposal of Refuse."

L. K. ROURKE,
Superintendent of Streets.

REINFORCED CONCRETE RESERVOIR

Sealed bids will be received by the Trustees for the Water Works and Improvement Bonds of the City of Jacksonville, Fla., until 3 o'clock P. M., Tuesday, October 4, 1910, for furnishing all material and labor and building a 3,000,000-gallon covered reinforced concrete reservoir on the water works grounds, Jacksonville, Fla. For plans, specifications or other information apply to R. N. Ellis, C. E., Superintendent. A certified check in the sum of one thousand dollars ($1,000) made payable to W. M. Bostwick, Jr., Chairman, must accompany each bid, and the successful bidder will be required to give a surety bond acceptable to the board in the round sum of 25 per cent of the bid. Bids must be enclosed in a sealed envelope, plainly marked "Bid for Reservoir," and addressed to the Chairman of the Board. The board reserves the right to reject any or all bids.

W. M. BOSTWICK, Jr.,
Chairman.

DEEP WELL PUMP

Lyons, Ill.

Sealed proposals will be received at the Village Hall by the President and Board of Trustees of the Village of Lyons, Illinois, on September 20th, 1910, at 8 o'clock P. M., for furnishing and erecting deep well pump, motor and accessories. Blank forms of proposal and specifications may be procured at the office of W. B. Ewing, Civil Engineer, 1003 Chamber of Commerce, Chicago, or at the office of the Village Clerk, Lyons, Illinois.

Each proposal must be accompanied by a certified check payable to the President of the Village of Lyons for 10% of aggregate amount of bid.

The Board reserves the right to reject any or all bids.

A. E. DEPEW, Village Clerk.

SANITARY SEWERS

Essex, Iowa.

Sealed proposals will be received at the office of Frank P. Rotton, City Recorder, Essex, Iowa, until 8 o'clock P. M., Sept. 14th, 1910, for the construction of about 5,326 linear feet of 12-inch sanitary sewer and seven manholes.

Plans and specifications can be seen at the office of the City Recorder or will be sent upon receipt of $1.50 to Delbert Wheeler, Engineer, Clarinda, Iowa.